M60050.000088 MCAS EL TORO SSIC # 5090.3

MARINE CORPS AIR STATION EL TORO EL TORO, CALIFORNIA INSTALLATION RESTORATION PROGRAM FINAL RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) FACILITY ASSESSMENT REPORT

VOLUME II Appendix C through G

16 July 1993

M60050.000088 MCAS EL TORO SSIC # 5090.3

FINAL RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), FACILITY ASSESSMENT REPORT (VOLUME I) DATED JULY 16, 1993 ENTERED IN DATABASE AND FILED AS ADMINISTRATIVE RECORD NO. M60050.000087

Appendix C SOIL BORING LOGS

RFAR'CTO193 CLE-C01-01F193-S2-0001

Appendix C BORING LOG LEGEND

SAMPLE TYPE:

MC - Modified California Split-Spoon drive sampler with 6-inch long brass liners

PENETRATION TEST:

6"-6"-6": The number of blows required from a 140-pound hammer falling 30 inches to drive a modified California Split-Spoon drive sampler each 6-inch increment. Penetration test results are not equivalent to Standard Penetration Test results and should not be taken as such.

NOTES:

- The boring logs and related information depict subsurface conditions only at the specific locations and dates indicated. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in conditions at these locations.
- 2. The borings were logged in the field by an engineer or geologist from CH2M HILL's Geotechnical Engineering Department. Samples were examined and visually classified in approximate accordance with ASTM D 2488.



PROJECT NUMBER	BORING NUMBER					
1 4070022 50 10	0034-1	SHEET	1	ΩF	2 .	

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10									
	LEVEL		ENCOUN		START 11/12/92 FINISH	11/12/9	2 LOGGER C. POLITO			
3 F		SAMPLE	:	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION		COMMENTS			
1 H = 1	٦	9	<u>⊁</u>	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		DEPTH OF CASING, DRILLING RATE			
FAC	INTERVAL	E AI	RECOVERY (FT)	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,		DRILLING FLUID LOSS			
DEPTH BELOW SURFACE (FT)	N.	TYPE AND NUMBER	REC(FT)	(N)	MINERALOGY		TESTS AND INSTRUMENTATION			
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5.0 —						7	-			
-						1	en e			
-						1				
-						\dashv				
-	40.0		1			4				
10.0 —	10.0				SILTY SAND (SM), brown, moist, dense,	+	HNu=0 ppm			
-		1-MC	2.0	16-26-26-26	trace mica.		OVA=>1000.0 ppm			
-	12.0					4				
						4				
_						-				
15.0 —						- 1				
-						4				
-						4				
-						4				
-						4	4			
20.0 —	20.0				Similar to 1-MC.					
		2-MC	1.6	14-20-25-30	Silling to 1 He.	4				
-	22.0				Similar to 2-MC.	·]	0VA=600 oom			
		2A-MC	1.5	22-28-22-26	Similar to 2-MC.		OVA=600 ppm			
	24.0									
25.0 —										
					$\frac{1}{2} \left(\frac{1}{2} \right) \right) \right) \right) \right)}{1} \right) \right) \right)} \right) $	7				
	÷ .					1				
						1				
30.0	30.0					1	·			
30.0 -		2	0.0	16-20-29-40	Similar to 2A-MC.	7	OVA=200 ppm			
	32.0	3-MC	2.0	10 20 20 40		4				
						1	·			



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ROJECT NUMBER	BORIN	G NUMBER
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SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSE	SSMENT	LOCATION MCAS-EL T	ORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1	/4" ID, 6-1/2" OD, INGERSOL-	RAND TH-10	<u> </u>	
WATER LEVELS NOT ENCOUNTERED	START 11/12/92	ETNIEU 11/12/92	LOCKER C. POLITO	

DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 WATER LEVELS NOT ENCOUNTERED START 11/12/92 FINISH 11/12/92 LOGGER C. POLITO									
WATER	T .								
₹Ē	SAMPLE STANDARD SOIL DESCRIPTION SOIL DESCRIPTION				SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
	40.0								
40.0 -	42.0	4- M C	2.0	20-30-30-64	SANDY SILT (ML), brown, moist, hard, micaceous, fine sand.	HNu=11.0 ppm OVA=2.0 ppm			
	44.0	4A-MC	2.0	35-28-40-70	Similar to 4-MC, 4-inch seam of silty sand at 43 feet.	HNu=16.0 ppm OVA=2.0 ppm			
45.0 -									
: : :									
500	50.0								
50.0 -	52.0	5-MC	2.0	18-24-44-61	SANDY SILT (ML), brown, moist, hard, fine sand, very micaceous, plastic.	. HNu=7.0 ppm OVA=1.0 ppm			
55.0 -									
	-								
80.0 -	60.0	6-MC	1.5	28-38-100/5"	SILTY CLAY (CL/ML), brown, moist, hard micaceous.	HNu=8.0 ppm OVA=1.0 ppm			
	- 01.3			•	Total Depth at 61.5 feet.				
85.0 -									
	1								



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SHEET 1 OF 2

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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO												
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA												
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22												
WATER	WATER LEVELSSTART 11/11/92 FINISH 11/11/92 LOGGER K. HUCKRIEDE											
T _E F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS						
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION						
100	-		1 = =			Start drilling at 09:20.						
-	ĺ			·	-							
_					- - -	- -						
				ļ								
5.0 —					POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, fine to medium grains, micaceous.							
-	10.0					-						
10.0 —	12.0	1-MC	1.3	20-15-23-42	SILT WITH SAND (ML), brown, hard, fine sand, micaceous.	Headspace reading 0.2 ppm on OVA, 45 ppm on HNu between sleeves.						
15.0												
-	20.0											
20.0 —	22.0	2-MC	1.5	25-41-36-42	POORLY GRADED SAND WITH SILT (SP-SM), brown, moist to wet, dense, fine grained, micaceous.	Headspace reading 100 ppm on HNu between sleeves, OVA reading similar to background.						
-	24.0	2A-MC	1.7	8-11-20-25	SILTY SAND (SM), brown, moist, very stiff, fine grained, micaceous.							
25.0 —			<i>:</i> -		-							
_												
30.0 —	30.0	3-MC	1.9	10-12-13-20	ELASTIC SILT WITH SAND (MH), brown, moist, very stiff, fine sand, micaceous.	Headspace reading 7ppm on CVA between sleeves.						
_	34.0	ЗА-МС	1.8	20-20-17-20	Similar to 3-MC.							
		1 1	1		1	7						



BORING NUMBER

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SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO											
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA											
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22											
WATER	WATER LEVELSSTARTSTARTFINISHLOGGERK. HUCKRIEDE										
≆Ē.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS					
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION					
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-											
40.0 —	40.0		,		Similar to 3A-MC, except hard, slightly more sand.	Headspace reading similar to background.					
-	42.0	4-MC	1.3	9-15-26-30	more sand.	Dackground.					
	42.0										
-						- -					
-		,			en e						
45.0 —					——————————————————————————————————————						
-											
] -			1								
-											
-	50.0				· · · · · · · · · · · · · · · · · · ·						
50.0 —		5-MC	1.8	7-5-7-8	Similar to 4-MC, stiff.	Headspace reading similar to background on OVA, 150 ppm on HNu between sleeves.					
-	52.0				-						
-											
-					-						
55.0 —					-						
-					. -	-					
-			·		<u> </u>						
=					-						
-	60.0				gradina di Paranta di						
60.0 —	60.0	6-MC	2.0	5-5-6-7	Similar to 5-MC.	Headspace reading 30 ppm on HNu between sleeves.					
_	62.0				T. 1. D. 11 100 0 F						
_			<u> </u>	·	Total Depth at 62.0 Feet.						
-					• • • • • • • • • • • • • • • • • • •						
85.0 —						_					
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3-MC

24.0

30.0

32.0

25.0

30.0

1.7

7-8-9-12

PROJECT NUMBER	BORING NUMBER					_
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SOIL BORING LOG

Headspace reading 1 ppm on HNu between sleeves, OVA reading similar to background.

PROJEC	T NAV	Y.CLEAN	RCRA	FACILITY ASSE	ESSMENT LOCATION MCA	S-EL TORO
ELEVAT			-		DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA
			EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	DO LO LO LA LINCUPIENE
WATER		·····				LOGGER K. HUCKRIEDE
₽Ę. T.T.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
ACE (1V AL	AND	VERY	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
DEPTH BEL SURFACE	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION
1						
1						
5.0						
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-						
-	1					•
-	10.0				<u>-</u>	
10.0 —	10.0	1-MC	1.8	10-10-10-17	SANDY ELASTIC SILT (MH), brown, moist, very stiff, fine sand, micaceous.	Headspace reading 0.4 ppm on OVA between sleeves.
	12.0	I-MC	1.0			
	•					
]]		· l	:			
15.0					_	
	-					
			, ,		· .	
-	20.0					
20.0 —		2-MC	1.3	8-8-7-12	POORLY GRADED SAND (SP), tan, moist to wet, medium dense, fine to medium grained.	Headspace reading 100 ppm on OVA between sleeves.
_	22.0	2A-MC	1.6	3-4-8-8	SANDY ELASTIC SILT (MH), brown with black, moist to wet, stiff, fine to medium sand, micaceous, oily spots.	Headspace reading 8 ppm on HNu, similar to background on OVA.

Similar to 2A-MC, except dark brown to black, moist.



PROJECT	NUMBE
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BORING NUMBER

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SHEET 2 OF 2

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PROJE	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO										
ELEVA	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA										
DRILLI	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22										
WATER	WATER LEVELS START 11/12/92 FINISH 11/12/92 LOGGER K. HUCKRIEDE										
₹F	<u></u>	SAMPLE	<u> </u>	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS					
1 H H	4	ģ	₩	TEST RESULTS		DEPTH OF CASING, DRILLING RATE					
FAC	INTERVAL	E AN	OVE	6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION					
DEPTH BELOW SURFACE (FT)	INI	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION					
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-	<u> </u>										
400	40.0		ļ			- -					
40.0 —		4 145	4.0	15-24-28-28	POORLY GRADED SAND WITH SILT (SP-SM), dark brown, moist, dense, fine to	Headspace reading 1 ppm on HNu between sleeves, OVA reading similar to					
	42.0	4-MC	1.8	10 24 20 20	medium grained, micaceous.	background.					
						<u>.</u>					
					1	•					
45.0 —				, ,	· · · · · · · · · · · · · · · · · · ·						
45.0 —											
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1					· · · · · · · · · · · · · · · · · · ·						
50.0	50.0										
30.0 —		5-MC	1.2	10-10-8-20	LEAN CLAY WITH SAND (CL), dark brown, moist, very stiff, fine to medium sand.	Headspace reading 200 ppm on OVA, 4 ppm on HNu between sleeves.					
	52.0	5-MC	1.2	10 10 0 20		•					
55.0						in the second of					
33.0					7						
		-				:					
					· · · · · · · · · · · · · · · · · · ·						
60.0	60.0										
00.0		6-MC	1.3	31-39-21-37	Similar to 5-MC, hard; <u>WELL GRADED SAND.</u> tan, moist to wet, in tip of sampler.	Headspace reading >1000 ppm on OVA.					
	62.0		2			* * .					
		-			Total Depth at 62.0 Feet.						
						· .					
65.0 —						1					
33.0						1					
		-				·					



PROJECT NUMBER	BORING NUMBER				
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PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA	TION _				DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA			
				MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	2 K HICKDIEDE			
WATER	LEVELS				START 11/2/92 FINISH 11/2/9				
W.()		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	. RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
					,	Start drilling 13:30.			
5.0 —					DOODLY COARD CAND (CO) (CALA bases				
3.0					POORLY GRADED SAND (SP), light brown, dry to moist, fine to medium grains.				
-									
10.0 —	10.0				WELL GRADED SAND (SW), vellowish brown,	Headspace reading 1.0 ppm on OVA after			
		1-MC	1.5	15-19-34-63	WELL GRADED SAND (SW), yellowish brown, dry to moist, very dense.	5 minutes in bag.			
_	12.0		 						
-									
15.0 —						· · · · · ·			
-				•		<u> </u>			
-									
-									
	20.0								
20.0 —		0.40	16	10-29-40-83	WELL GRADED SAND WITH GRAVEL (SW), Drown, wet, very dense.				
	22.0	2-MC	1.6	10 20 10 00					
_									
25.0 —			,						
_					· ·				
_		-							
_				·					
-						-			
30.0 —	30.0				WELL GRADED SAND WITH GRAVEL (SW),	Headspace reading similar to background between sleeves on OVA.			
-		- 3-MC.	1.9	26-24-37-32	brown, wet, dense.	background between sleeves on OVA.			
-	32.0	,			-				
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-			1		-				



BORING NUMBER

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SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA		 			DRILLING CONTRACTOR BEYLIK DRIL	LLING, 1	INC., LA HABRA, CALIFORNIA		
DRILLI	NG MET	HOD AN	D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22				
	LEVELS				START 11/2/92 FINISH	11/2/92	LOGGER K. HUCKRIEDE		
S.F.	<u></u>	SAMPLE	<u>:</u>	STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS		
DEPTH BELOW SURFACE (FT)	اپر ا	ا ي	≿	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		DESTIL OF CACING PRILLING DATE		
H E	RV.	AN SER)VE		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS		
FP.	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MINERALOGY		TESTS AND INSTRUMENTATION		
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J	1	. '				4			
-	·	!							
40.0 —	40.0								
40.0				34-22-100-87	<u>CLAYEY SAND</u> (SC), brown, very dense, fine to medium grained.	. 7	Headspace reading similar to background on OVA.		
	42.0	4-MC	1.6	34 22 100 0.	en e	٦			
1	72.0		 			1	en e		
-		'	1			4	·		
		'	1			4	•		
45.0	. I	!	. !			4			
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1		'	1	1					
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]		!	' '			1			
	50.0	1	'			1			
50.0	30.5				POORLY GRADED SAND (SP), brown, wet,	-	Headspace reading similar to		
		5-MC	1.5	20-22-18-26	medium dense, fine to medium grains.	4	background on OVA.		
	52.0	 	 	 		4			
						4	and the second of the second o		
		-		1		1			
55.0				1			_		
33.5			!						
					en e	1	en e		
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		1	•	1		+			
1 -						+	• • • • • • • • • • • • • • • • • • •		
0.08	60.0	 	 _		Similar to 5-MC, very dense.	\dashv	Unadanasa yanding similar ka		
		6-MC		40-40-56-58		4	Headspace reading similar to background on OVA.		
	62.0			<u> </u>					
		1			Total Depth at 62.0 Feet.				
		1.				7	·		
85.0 —				[\exists			
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PROJECT	NUMBER
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BORING NUMBER

005A-2

SHEET 1

SOIL BORING LOG

	TION _				DRILLING CONTRACTOR BE		LLING,	ING., LA HABNA, CALIFORNIA
			D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-			
WATER	LEVEL				START 11/3/92	FINISH	11/3/92	LOGGER K. HUCKRIEDE
¥Ē.	<u> </u>	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION			COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6'-6'-6'	SOIL NAME, USCS GROUP SYMBOL, MOISTURE CONTENT, RELATIVE DOR CONSISTENCY, SOIL STRUCTURE MINERALOGY	ENSITY	i	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
								Start drilling 10:00.
- ,- -								
-	ļ .						-	
5.0 —					<u>POORLY GRADED SAND</u> (SP), bro loose, fine to medium grained, tra gravel.	wn, dry, ce	-	
							4	
-								
10.0 —	10.0							Refusal, no recovery.
	12.0	1-MC	0.0				4	, , , , , , , , , , , , , , , , , , ,
. -	14.0	1A-MC	2.0	47-52-34-57	WELL GRADED SAND WITH GRAVE moist, very dense.	L (SW),]	Headspace reading similar to background on OVA.
15.0 —	11.0						+	
-	1	,					-	
							. 🖠	
20.0 —	20.0						-	
-	22.0	2-MC	2.0	50-40-23-30	Similar to 1A-MC, wet, dense.			Headspace reading similar to background on OVA.
-							1	
- 25.0 —							1	

<u>POORLY GRADED SAND WITH CLAY</u> (SP-SC), wet, medium dense, fine to medium grains. 20-22-23-24

30.0

32.0

3-MC

1.3

30.0

Headspace reading similar to background on OVA.



PROJECT NUMBER	BORING NUMBER			
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PROJECT NAVY CLEAN RCRA FACILITY AS	SESSMENT	LOCATION MCAS-EL	TORO	
ELEVATION	DRILLING CONTRACTO	BEYLIK DRILLING, INC.,	LA HABRA, CALIFORNIA	-
DRILLING METHOD AND EQUIPMENT HSA, 3	-1/4" ID, 6-1/2" OD, GUS PECH	BRAT-22		_
WATER LEVELS	START 11/3/92	EINTEH 11/3/92	LOCGED K. HUCKRIEDE	

ATER	LEVELS	3			STARTFINISHFINISH	LOGGER K. HUCKRIEDE
s£		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					• • • • • • • • • • • • • • • • • • •	
-	40.0				• • • • • • • • • • • • • • • • • • • •	
40.0 	42.0	4-MC	1.7	10-11-10-12	Similar to 4-MC.	Headspace reading similar to background on OVA.
-						Perched water table at 42.0'.
45.0 —		-				
-						
50.0	50.0 52.0	5-MC	1.8	10-15-20-30	CLAYEY SAND (SC), wet, medium dense to dense, fine grained.	Headspace reading similar to background on OVA.
		5A-MC	1.3	15-15-20-21	Similar to 5-MC, medium dense.	
i5.0 —						
-						
0.0	60.0	6-MC	1.7	17-20-21-58	Similar to 5A-MC, dense.	Headspace reading similar to backgour on OVA.
	62.0 64.0	6A-MC	2.0	20-22-30-54	Similar to 6-MC; <u>WELL GRADED SAND</u> (SW), in tip of sampler.	
5.0					Total Depth at 64.0 Feet.	
-					• • • • • • • • • • • • • • • • • • •	
4					· -	



BORING NUMBER

011A-1

SHEET 1 OF 2

					<u> </u>					
PROJE	CT NAV	Y CLEA	N RCRA	FACILITY ASS	ESSMENT LOCATION MCA	S-EL TORO				
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
			ID EQUI	PMENT HSA, 4-	1/4" ID, 8" OD, FAILING F-10					
WATER	LEVEL				START 11/4/92 FINISH 11/4/92					
₽Ē.		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	V AL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE				
PTH	INTERVAL	PE IN BE) OG	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
88	I E	£3	##	(11)		Charl delling of 00:25				
-						Start drilling at 09:35.				
} .	-			·	-					
	1				†					
-										
5.0 —	1				· · · · · · · · · · · · · · · · · · ·					
-	1				-					
-	1.				i i i i i i i i i i i i i i i i i i i					
			}		1					
10.0 —	10.0									
10.0		1-MC	2.0	27-40-39-52	LEAN CLAY WITH SAND (CL), brown, moist, hard, fine sand.	HNu=0 ppm OVA=2.2 ppm				
	12.0									
-	4									
-										
15.0 —			٠.		4					
-	-									
-	1									
-	1					+				
-	20.0					· · · · · · · · · · · · · · · · · · ·				
20.0 —	20.0			25-32-40-58	Similar to 1-MC, fine to medium grained sand.	HNu=0 ppm OVA=0.4 ppm				
-	22.0	2-MC		25-32-40-56	1	0VA-0.4 ppiii				
_										
25.0					_].	·				
_										
-					·					
_										
-					4					
30.0 —	30.0		-		Similar to 2-MC.	HAUTE COOK				
_		3-MC	1.8	8-21-32-36		HNu=0 ppm OVA=0.6 ppm				
-	32.0				SANDY LEAN CLAY (CL), brown, moist,	4				
-	34.0	3A-MC	2.0	12-30-43-51	hard, coarse to fine sand.	HNu=0 ppm OVA=55 ppm				



BORING NUMBER

011A-1

SHEET 2 OF 2

PROJE	CT NA	Y CLEA	N RCRA	FACILITY ASSI		
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING.	INC., LA HABRA, CALIFORNIA
			ID EQUI	PMENT HSA, 4-	1/4" ID, 8" OD, FAILING F-10	
$\overline{}$	LEVEL				START 11/4/92 FINISH 11/4/9	
ME C	_	SAMPLE	T	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	JA/	S.	RECOVERY (FT)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE
PTH	INTERVAL	TYPE AND NUMBER	000	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SE	<u>Z</u>	≿⊋	# <u>E</u>	(N)	MINENALOUT	
-	1					
	1					·
-	4					
-	-					·
40.0 -	40.0	ļ	 		Similar to 3A-MC.	HNu=0 ppm —
-	1	4-MC	2.0	18-28-49-60	Similar to GA 146.	OVA=50 ppm
-	42.0		 			-
-			ļ			<u> </u>
-	-					en e
45.0 —	1					
-						
-	-					· · · · · · · · · · · · · · · · · · ·
-	-					
_	_					· · · · · · · · · · · · · · · · · · ·
50.0 —	50.0				WELL GRADED SAND (SW), tan, moist, very	HNu=0 ppm —
-		5-MC	1.75	19-40-43-53	dense, trace gravel, trace clay.	OVA=4.0 ppm
-	52.0		<u> </u>			
-						
-					`	
55.0						<u> </u>
-			1			
-			.			
-	58.0	<u> </u>			POORLY GRADED SAND (SP), tan, moist,	HNu=0 ppm -
-		6-MC	1.6	20-38-42-50	very dense, fine to medium grains, trace clay.	OVA=2.5 ppm
60.0 —	60.0					
-		6A-MC	1.5	32-40-50-72	WELL GRADED SAND (SW), tan, moist, very dense, trace coarse to fine gravel, trace	HNu=0 ppm OVA=4.8 ppm
_	62.0				clay.	
-		-			End Drilling at 62.0 feet	
_						
6 5.0 —						
_						1
-					·	
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_					1	



PROJECT NUMBER	BORING NUMBER			·		
LA070022.S0.10	011A-2	SHEET	1	OF	2	

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVA				<u> </u>	DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA		
			D EQUIP	MENT HSA, 4-	1/4" ID, 8" OD, FAILING F-10	· ·		
WATER	LEVELS	30'			START 11/5/92 FINISH 11/5/93	LOGGER HARDESTY		
3 €		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
,			_			Start drilling at 11:15.		
1								
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5.0 —			·					
						• • • • • • • • • • • • • • • • • • •		
10.0 —	12.0	1-MC	1.6	27-36-67-80	SANDY LEAN CLAY (CL), brown, moist, hard, fine to coarse sand, trace to little fine gravel.	HNu=0 ppm OVA=0 ppm		
	12.0		-					
15.0 —						- - - -		
20.0	20.0				HIGH CDADED CAND HITH CLAY (CH. CC)	-		
-	22.0	2-MC	1.5	22-30-49-87	WELL GRADED SAND WITH CLAY (SW-SC), brown, moist, very dense.	HNu=0 ppm OVA=0 ppm		
25.0 —		· ·				- 		
_		·						
30.0 —	30.0				LEAN CLAY (CL), brown, moist, hard, trace	Encountered perched water at approximately 30 feet. HNu=0 ppm		
_	32.0	3-MC	1.6	12-29-31-50	to little fine sand.	OVA=0.6 ppm -		
-						-		



PROJECT	NUMBER
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BORING NUMBER

-2

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO										
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA										
	DRILLING METHOD AND EQUIPMENT HSA, 4-1/4" ID, 8" OD, FAILING F-10									
WATER	LEVELS	30'			START 11/5/92 FINISH 11/5/9	2 LOGGER HARDESTY				
ME (F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
				·	ing panggang panggan Panggang panggang pa					
					- - -	-				
40.0 —	40.0				CLAYEY SAND (SC), brown, moist, very	HNu=0.5 ppm				
	42.0	4-MC	1.6	32-47-50-66	dense, well graded.	OVA=1.4 ppm				
-	12.0									
]										
45.0 —										
13.0										
						· -				
_					-					
-										
50.0 —	50.0	F 140	4.5	12-21-27-39	<u>CLAYEY SAND</u> (SC), brown, mbist, dense, fine grained.	HNu=30 ppm OVA=1.0 ppm				
	52.0	5-MC	1.5	12 21 27 33						
_		5A-MC	1.6	10-14-20-36	52-53.5' <u>SANDY LEAN CLAY</u> (CL), brown, moist, very stiff, fine sand.	HNu=55 pom				
-	54.0				53.5-54' <u>CLAYEY SAND</u> (SC), brown to tan, moist, well graded.	OVA=0.6 ppm				
55.0 —						<u> </u>				
-										
-										
_					to grand the second of the sec					
	60.0					-				
60.0 —	00.0	0.110	1.7	11-19-27-35	SANDY LEAN CLAY (CL), grayish brown, moist, hard, fine to medium sand.	HNu=65 ppm OVA=0.4 ppm				
	62.0	6-MC	1.7	11 10 21 00	most, naja, me to medium sana.					
					Total Depth at 62.0 Feet.					
85.0 —										
-					-					
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-	:				-	<u>-</u>				
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PROJECT	NUMBE
LA07002	2.50.10

BORING NUMBER

011A-3

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO										
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA										
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10										
WATER	LEVELS			 	START 11/6/92 FINISH 11/6/92	LOGGER A. GIMURTU				
∓ ₽		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	,		>	STANDARD PENETRATION TEST	COTI NAME LICCS CROLLE SYMBOL COLOR					
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS				
FPT.	TEF	AB.	T)	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION				
ದ್ದ	Z.	ĹΖ	光 F	(14)	Surficial material consists of fine sand with	Start drilling at 2:00.				
_					pebbles and gravel.	Difficult drilling from 0 to 3 feet because of large rocks.				
-					4	or large rocks.				
						4				
				:		_				
5.0 —										
					· · · · · · · · · · · · · · · · · · ·					
						1				
					d					
10.0 —	10.0				WELL GRADED SAND (SW), light brown, dry,	Sample headspace at 0 ppm with OVA at				
-	• 1	1-MC	0.4	14-14-16-17	medium dense, fine sand to 1 mm diameter coarse sand, trace silt.	10.5 foot sample sleeve.				
-	12.0									
_		1A-MC	2.0	24-25-20-25	Similar to 1-MC.					
	14.0									
15.0 —										
10.0										
				,						
	20.0				·					
20.0 —	20.0			05 57 00 00	Similar to 1A-MC.	Sample headspace at 0 ppm with OVA at 21.0 foot sample sleeve.				
-	22.0	2-MC	2.0	25-57-22-20	†	zilo toot dample diceve.				
-	22.0				SANDY SILT (ML), brown, moist, hard, fine					
-		2A-MC	2.0	15-23-40-37	sand in a non-plastic micaceous silt matrix.	1				
-	24.0				· · · · · · · · · · · · · · · · · · ·					
25.0 —										
-					4					
_					<u>;</u>					
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	·									
300	30.0									
30.0 —		2		28-33-36-60	ELASTIC SILT (MH), reddish brown, moist, hard, some interbedded deposits of sand	Sample headspace at 1 ppm with HNu at 30.0 foot sample sleeve.				
-	32.0	3-MC	2.0	25 55 50 00	mixed in with the micaceous silt deposit.					
-					1	·				
-			<u> </u>		<u> </u>					
I .			i		· ,	·				



BORING NUMBER

011A-3

SHEET 2 OF 2

	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
ELEAV.					DRILLING CONTRACTO	-PAND TH-10	ILLINO,	INC., EA HADINA, CALIF CHINIA	
	NG METI LEVELS		D EQUIP	MENT HOA, 3-	/4" ID, 6-1/2" OD, INGERSOLSTART11/6/92	FINISH	11/6/92	LOGGER A. GIMURTU	
		SAMPLE		STANDARD	SOIL DESCRIP			COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP S' MOISTURE CONTENT, RELA' OR CONSISTENCY, SOIL ST MINERALOGY			DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
- - - 40.0 —	40.0				Similar to 3-MC.		1 1	Sample headspace at 0.5 ppm on OVA	
-	42.0	4-MC	2.0	19-40-100/5"	Similar to 4-MC.		_	between sleeves.	
-	44.0	4A-MC	1.9	15-100-100			4		
45.0 —							4		
_							4		
-	50.0								
50.0 —	52.0	5-MC	1.8	20-50-30	<u>SILTY SAND</u> (SM), dense, grained.	fine to medium	-	Sample headspace at 0.5 ppm on OVA.	
-							-		
55.0 —					·			·	
							-		
80.0 —	60.0	6-MC	2.0	70-100-80-100	ELASTIC SILT. (MH), redo hard, some interbedded d mixed in with the micaceou	eposits of sand	i t	Headspace similar to background on OVA.	
	62.0				Total Depth at 62.0 Feet.		-		
65.0							-		
-							1		



PROJECT NUMBER	BORING NUMBER	
1 4070022 50 10	0110 = 4	SHEET 1 OF 2

PROJE	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVA			<u> </u>		DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA		
DRILLI	NG MET	HOD AN	D EGUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10			
	LEVEL				START 11/6/92 FINISH 11/6/9	LOGGER A. GIMURTU		
₹ F		SAMPLE	<u> </u>	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
						Start drilling at 8:30.		
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5.0 —								
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-						and the state of t		
			ļ.					
-	-							
10.0	10.0				SANDY SILT (ML), brown, moist, hard,	Sample headenage 12 ppm with OVA 5		
_	12.0	1-MC	1.4	14-21-20-30	approximately 30% fine sand, micaceous minerals present.	Sample headspace 12 ppm with OVA, 5 ppm with HNu at 12.0 feet in sample shoe.		
_					l e e e e e e e e e e e e e e e e e e e	and the second s		
					,	eti erre erre erre erre erre erre erre e		
					•	-		
15.0 —								
1					1			
-					1			
-	20.0							
20.0 —		2-MC	1.6	22-21-21-24	SILTY SAND (SM), light brown, medium dense, approximately 30% silt.	Sample headspace 5 ppm with OVA at 20.0 feet in extra sample sleeve.		
	22.0	<u> </u>		· · · · · · · · · · · · · · · · · · ·				
-			·		·	· · · · · · · · · · · · · · · · · · ·		
] -					4			
25.0 —					. 4			
	-				4			
} -								
					4			
30.0	30.0				SILTY SAND (SM), light brown, moist, very	Sample headspace 3 ppm with OVA, 0		
	32.0	3-MC	2.0	20-22-40-60	dense, micaceous minerals present, local well graded clean sand lenses present.	ppm with HNu from 30.0 feet sample sleeve.		
	. 7				7			
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1 1	-		}		taran da karangan da karang			



BORING NUMBER

0114-4

SHEET 2 OF 2

					<u> </u>					
PROJE	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA										
DRÌLLI	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10									
WATER	LEVEL	s			START 11/6/92 FINISH 1	11/6/92 LOGGER A. GIMURTU				
-0		SAMPLE		STANDARD PENETRATION		COMMENTS				
DEPTH BELOW SURFACE (FT)		<u> </u>		PENETRATION TEST						
ᆲ	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE				
F.F.	TER	H H	000	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
SE	Z	<u> </u>	뿐	(N)	MINERALOUT					
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	ļ									
-						<u> </u>				
-						-				
-	40.0					· - -				
40.0 —	40.0				Similar to 3-MC, dense, distinct zones of	Sample headspace 3 ppm with OVA, 2				
-		4-MC	2.0	48-40-22-45	silt and sand rich layers which grade into each other.	ppm with HNu from 41.0 feet sample sleeve.				
-	42.0				Similar to 4-MC, very dense.	-				
-		4A-MC	2.0	30-72-75-80						
	44.0									
45.0 —	-									
70.0						7				
						-				
				·		-				
-					<u>.</u>	on ∰an on the control of the contro				
-	50.0			1		- -				
50.0 —	50.0				The sample is divided down the middle	Sample headspace 0 ppm with OVA in				
-		5-MC	2.0	58-48-45-72	lengthwise as (SW) light gray, well graded sand and (ML) dark brown, clayey silt,	sleeve from 50.0 feet.				
-	52.0				each occupying one half the area (cross section) of the sample sleeves.	- 4				
-					section, or the sample siecyes,	_				
55.0 -			- 1							
20'0										
						1				
-						4				
-						-				
60.0	60.0				SILT (ML), dark brown with red mottling.	Sample headspace 0 ppm with OVA in				
] -		6-MC	1.5	46-92	moist, hard, trace to little fine sand.	sleeve at 61.0 feet.				
	62.0									
					Total Depth at 62.0 Feet.					
05.0						1				
65.0						7				



PROJECT NUMBER	BORING NUMBER					
LA070022.RV	013B-1	SHEET	1	0F	1	

SOIL BORING LOG

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACT	OR BEYLIK DRILLING INC, LA HABRA	, CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGERS		
		2 _ 2 1	

LOGGER H.UNDERWOOD WATER LEVELS NOT ENCOUNTERED FINISH 10-8-92 START 10-8-92 STANDARD PENETRATION TEST SOIL DESCRIPTION COMMENTS SAMPLE 의 단 SOIL NAME, USCS GROUP SYMBOL, COLOR, DEPTH BEL SURFACE RECOVERY (FT) INTERVAL (FT) TYPE AND NUMBER RESULTS DEPTH OF CASING, DRILLING RATE MOISTURE CONTENT, RELATIVE DENSITY DRILLING FLUID LOSS OR CONSISTENCY, SOIL STRUCTURE, TESTS AND INSTRUMENTATION 6" -6" -6" -6" MINERALOGY Surface material consists of 0.3' of asphalt pavement. 5.0 5.0 OVA = 0.2 ppmSILTY SAND, (SM), brown, dry to moist, 4-7-12-20 HNu = 0 ppmmedium dense, fine grained sand, 1-MC 1.6 micaceous or quartz crystals. 7.0 10.0 10.0 Similar to 1-MC, except medium dense to OVA = 2 ppm10-14-21-28 HNu = 10 ppmdense. 2-MC 2.0 12.0 15.0 SILTY SAND, (SM), light brown and brown, dry to moist, dense, fine grained sand, micaceous crystals, light brown cementing substance in micro fracture stringers. 15.0 OVA = 1 ppm 16-26-24-40 HNu = 0 ppm3-MC 2.0 17.0 20.0 20.0 POORLY GRADED SAND WITH SILT. OVA = 1 ppm11-16-21-36 (SP-SM), light brown and brown, dry to HNu = 0 ppm4-MC 2.0 moist, dense, fine to medium grained sand, 22.0 micaceous crystals. 25.0 25.0 POORLY GRADED SAND WITH CLAY, (SP-SC), brown, moist, dense, fine grained sand, light brown cementing substance in microfractures, micaceous crystals. OVA = 0 ppmHNu = 0 ppm18-23-24-36 5-MC 27.0 END OF BORING AT 27.0 FEET 30.0



BORING NUMBER

013B-2

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA									
DRILLI	NG MET	HOD AN	D EQUIF	MENT HOLLOW					
WATER	LEVEL	s		 	START 10-9-92 FINISH 10-9-9	LOGGER H.UNDERWOOD			
₹F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
_						Surface material consists of 0.3' of asphalt pavement.			
_									
-	5.0								
5.0 -	7.0	1-MC	1.3	5-7-11-15	SILTY SAND. (SM), brown, moist, medium dense, fine to medium grained sand, micaceous crystals, approximately 15% silt.	OVA = 0 ppm HNu = 0 ppm			
-	7.0								
-			:			-			
10.0 -	10.0				Cinilar to 1 MC average fire project and				
-	12.0	2-MC	1.2	11-15-15-26	Similar to 1-MC except fine grained sand, and siltier, light brown cementing substance in micro fractures.	OVA = 0 ppm HNu = 0 ppm			
_						- -			
-	15.0								
15.0 —	16.5	3-MC	1.5	12-16-20	POORLY GRADED SAND WITH SILT. (SP-SM), light brown to brown, dry to moist, medium dense, fine to medium	OVA = 1 ppm HNu = 52 ppm Checked a decontaminated spoon. Ran			
_					grained sand, micaceous crystals.	headspace on sample - HNu = 58 ppm - OVA = 0 ppm -			
-	20.0								
20.0 —	22.0	4-MC	1.9	7-21-23-28	POORLY GRADED SAND WITH SILT. (SP-SM), light brown and brown, dry to moist, dense, fine to coarse grained sand, micaceous crystals, with less than 5%	OVA = 2 ppm HNu = 0 ppm			
-				Ť.	gravel.				
	25.0				1				
25.0 —	27.0	5-MC	0.8	11-13-18-30	CLAYEY SAND. (SC), brown, moist, medium dense, fine grained sand, micaceous crystals, light brown cementing substance in micro fractures.	OVA = 0 ppm HNu = 20 ppm			
_					END OF BORING AT 27.0 FEET	-			
30.0 —						•			
-		,							
-									



PROJE	CT	NU	4BEF
1.4070	023	PV	,

BORING NUMBER

013B-3

SHEET 1 OF 1

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA			
DRILLII	NG METI	HOD ANI	D EQUIP	MENT HOLLOW	STEM AUGERS FINISH 10-9-92 FINISH 10-9-				
WATER	LEVELS			1					
≆ :		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
						Surface material consists of 0.3' of asphalt payement.			
1						aspriant povement.			
-						1 .			
-		1.			·	in the state of th			
5.0 —	5.0				POORLY GRADED SAND WITH SILT.	OVA = 4 ppm			
-		1-MC	1.3	3-4-5-7	(SP-SM), light brown grading to brown, dry grading to moist, loose, fine to medium	HNu = 62 ppm -			
-	7.0				grained sand, micaceous crystals, silt				
_					Content increases with depth.				
-					· · · · · · · · · · · · · · · · · · ·	-			
10.0 —	10.0								
-	12.0	2-MC	2.0	7-15-20-40	SILTY SAND. (SM), brown, moist, dense, fine grained sand, micaceous crystals, light brown cementing substance in micro fractures.	OVA = 0 ppm HNu = 160 ppm			
_				4		_			
	15.0								
15.0 —	16.5	3-MC	1.5	8-12-25	POORLY GRADED SAND WITH SILT. (SP-SM), brown, moist, medium dense, fine grained sand, micaceous crystals.	OVA = 1 ppm HNu = 200 ppm			
-					-				
-					-	•			
-		ļ. !			•				
20.0 —	22.0	4-MC	2.0	13-17-27-29	SILTY SAND. (SM), light brown to brown, moist, dense, fine grained sand, micaceous crystals, cementing substances in micro	OVA = 0 ppm HNu = 120 ppm -			
-	22.0				fractures.				
-					•	·			
-	25.0				•	<u> </u>			
25.0 —	25.0				Similar to 4-MC, except very dense.	OVA = 1.5 ppm			
_	27.0	5-MC	2.0	12-25-25-30		HNu = 340 ppm			
					END OF BORING AT 27.0 FEET				
	•	. ·				_			
300									
30.0 —		,			en e				
	·				· · · · · · · · · · · · · · · · · · ·				
-									
-									



BORING NUMBER

026A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILI	TY ASSESSMENT		LOCATION MCAS-EL TO	RO	
ELEVATION	DF	RILLING CONTRACTOR -	BEYLIK DRILLING, INC., LA	HABRA, CALIFORNIA	_
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-	-1/2" OD, MOBILE B-61			
		10 (01 (00	10/21/02	I EDITENSCHAE	

_				PILITI	1/4" ID, 6-1/2" OD, MOBILE B-61	/92 LOGGER J. FRIZENSCHAF
IATER	LEVELS				START 10/21/92 FINISH 10/21/	
sf.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					SURFACE MATERIAL: First layer is paved (approximately 1.5 inches); light gray silt underneath, silt is intermixed with gravel (approximately 1 foot).	Start drilling at 11:15.
-		-			1-2' <u>SILTY SAND</u> (SM), light brown to yellowish, dry, loose, fine grained, homogeneous with subangular gravel.	
5.0					<u>SILTY SAND</u> (SM), darker light brown, dry, loose, fine grained, homogeneous.	
-						
]	10.0			·		
10.0	12.0	1-MC	2.0	8-13-16-20	10-11.5' <u>SILTY SAND</u> (SM), light to darker brown, moist, medium dense, fine grained, homogeneous, some white platy chips intermixed.	HNu=0 ppm OVA=0 ppm
					11.5-12' <u>CLAYEY SILT</u> (ML/CL), light brown, moist, homogeneous with white mineral precipitation spots.	
15.0 —						
-						
20.0 —	20.0				OO OF CANDY BY T. (M) Visha beauty	IIN. O con
.0.0	22.0	2-MC	2.0	10-17-19-25	20-21' <u>SANDY SILT</u> (ML), light brown, moist, very stiff, homogeneous. 21-22' <u>CLAYEY SILT</u> (ML/CL), light brown,	HNu=0 ppm OVA=0 ppm
	22.0	2A-MC	2.0	5-20-27-30	moist, very stiff. SANDY SILT (ML), light brown, moist, hard, homogeneous, micaceous minerals present.	HNu=0 ppm OVA=5 ppm
25.0 —						
1						
-	30.0		٠.		· · · · · · · · · · · · · · · · · · ·	
30.0 — _ _	32.0	3-MC	2.0	18-20-20-25	SANDY SILT (ML), light brown, moist, very stiff, homogeneous, micaceous minerals and green mineral percipitation "spots".	HNu=5 ppm OVA=1 ppm
	-					



ROJECT NUMBER	BORING NUMBER
KO70000 CO 10	0264-1

SOIL BORING LOG

PROJECT	NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATIO	ON DRILLING CONTRACTO	R BEYLIK DRILLING, INC., LA HABRA, C	CALIFORNIA

DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, MOBILE B-61

ATER	LEVELS	3			START 10/21/92 FINISH 10/2	
x (-		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	٩Ľ	9~	ŀR≺	STANDARD PENETRATION- TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
FAC	INTERVAL	E A BEF	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SE	Z Z	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	
_						
-	-					
-	40.0					
.0 —	40.0				40-40.5' Similar to 3-MC.	HNu=0 ppm
-		4-MC	1.9	23-30-50 -75/3"	40.5-42' <u>WELL GRADED SAND</u> (SW), light brown to light gray, very dense, dry,	OVA=1 ppm
_	42.0				homogeneous, quartz minerals approximately 0.2 mm in size.	4
						4
_						4
.o —						
_						
_						
_						
	•			1		
. ~	50.0					
.0				24-40-60-75	50-50.5' Similar to 4-MC. 50.5-52' <u>SANDY SILT</u> (ML), light brown to	HNu=0 ppm OVA=0 ppm
-	52.0	5-MC	2.0	24 40 00 73	reddish color, moist, hard, grayish stains (chemreduction zones), occasional quartz	1
_	02.0				particles.	
-						1
.0 —						\dashv
-						4
-						
-						4 .
_					•	4
).O —	60.0				SANDY STIT (MI) light brown majet hard	HNu=O ppm
		6-MC	2.0	10-24-57-60	SANDY SILT (ML), light brown, moist, hard, homogeneous with local white streaks.	OVA=0 ppm
-	62.0			·		·
					Total Depth at 62.0 Feet.	
-						
.0 —						1 .
-						1
-						1
-					•	
-						-
	1	1	1			



30.0

32.0

3-MC

1.4

30.0 -

PROJECT NUMBER LA070022.S0.10 BORING NUMBER

027A-1

SHEET 1 OF 2

SOIL BORING LOG

HNu=0.5 ppm OVA=0 ppm

		V CI - 4	V DCD 4	CACILITY ACC	TOPMENT NO.	S_EL TOPO
		T ULEA!	N HUHA	FACILITY ASSE	ESSMENT LOCATION MCA DRILLING CONTRACTOR BEYLIK DRILLING,	
ELEVAT		LIOD AND	- FOUT	MENT HSA 4-	DRILLING CONTRACTOR BETEIN BRILLING, 1/4" ID, 8" OD, FAILING F-10	INC., EA HADINA, CAET ONNIA
		NOT E			START 10/26/92 FINISH 10/27/	92 LOGGER B. HARDESTY
		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	٠.				SURFACE MATERIAL: <u>SANDY SILT</u> (ML), little gravel, fill.	Start drilling at 14:20.
5.0					<u>LEAN CLAY WITH SAND</u> (CL), dark brown, — moist. — — — — — — — — — — — — — — — — — — —	5 feet to 8 feet discolored zone of cuttings, material had strong odor.
10.0	10.0	1-MC	1.75	27-14-19-12	10-11' <u>SANDY LEAN CLAY</u> (CL), dark brown, moist, very stiff. 11-12' <u>CLAYEY SAND</u> (SC), dark brown, moist, medium dense.	OVA=10 ppm HNu=6 ppm
	14.0	1A-MC	2.0	25-20-22-26	<u>SILTY SAND</u> (SM), brown, moist, medium dense, well graded, trace fine to coarse gravel.	OVA=0 ppm HNu=0 ppm
15.0 — - - -						
20.0	22.5				LEAN CLAY WITH SAND (CL) or switch	Strong odor at top of sample.
25.0 —	24.5	2-MC	1.75	14-20-18-24	LEAN CLAY WITH SAND (CL), grayish brown to dark brown, moist, very stiff, fine sand, trace fine to coarse gravel. ———————————————————————————————————	Strong odor at top of sample. HNu=5 ppm OVA=35 ppm
-					-	

Similar to 2-MC.

10-12-15-28



BORING NUMBER

027A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILI	TY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 4-1/4" ID, 8" OD, FAILING F-10		

	LEVEL	s NOT E			START 10/26/92 FINISH 10/27	LOGGER B. HARDESTY
ŽĖ.		SAMPLE	r —	STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
			1			Start drilling at 16:55.
_						
		·			-	
_						
.0 —	40.0				PANDY I FANI CLAY (CL) bysus to doub	100-05
-	42.0	4-MC	2.0	16-21-19-29	SANDY LEAN CLAY (CL), brown to dark brown, moist, very stiff, fine to medium grained sand.	HNu=0.5 ppm OVA=0 ppm
-	72.0			40 40 30 00	CLAYEY SAND (SC), grayish brown, moist, dense, well graded.	HNu=2 ppm OVA=0 ppm
_	44.0	4A-MC	1.9	12-40-30-26	Solide, Hell graded.	оти-о ррш
^					- -	
.0 —					T	
_						
0 —	50.0				SANDY LEAN CLAY (CL), brownish gray to	HNu=2 ppm
-	52.0	5-MC	1,4	22-27-30-30	brown, moist, hard, fine to coarse grained sand.	OVA=0.5 ppm
-	32.0					
1						
0 —						
					1	
0 -	60.0				60-61' <u>SANDY LEAN CLAY</u> (CL), grayish	∐Nu÷0 com
4	-	6-MC	2.0	17-21-36-47	brown, moist, very stiff, fine to coarse grained sand.	HNu=0 ppm OVA=0 ppm
4	62.0				61-62' CLAYEY SAND (SC), brownish gray, moist, very dense, fine to coarse grained.	
+					Total Depth at 62.0 Feet.	
-						
0 –			1			
+		.			-	
-			·		+	
+					4	•
4				100		



31.0

33.0

3-MC

3A-MC

2.0

1,7

19-52-82/5"

67-60-70

PROJECT	NUMBER
LA07002	2.50.10

BORING NUMBER

030A-1

SHEET: 1 OF 2

Sample headspace 0 ppm with OVA, at 30.0 feet.

SOIL BORING LOG

ROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	SSMENT	LOCATION MCAS	-EL TORO
LEVAT					DRILLING CONTRACTOR BEY		
		HOD AND			1/4" ID, 6-1/2" OD, INGERSOL-RAND		
	LEVELS					FINISH 10/30/9	LOGGER A. GIMURTU
		SAMPLE		STANDARD	SOIL DESCRIPTION		COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, MOISTURE CONTENT, RELATIVE DI OR CONSISTENCY, SOIL STRUCTUR MINERALOGY	ENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
					POORLY GRADED SAND (SP), loos grained.	se, fine	Start drilling at 09:50.
1							
.0 -			-				
- 							
	10.0	*					
).0 — _ _	12.0	1-MC	1.4	10-15-25-37	SANDY SILT (ML), brown, moist, I grained sand, some mica.	nard, fine	Sample headspace 0 ppm with OVA, a 10.0 feet in sleeve.
_						-	
5.0 — - -			-		•	1	
-						-	
).0 — -	20.0	2-MC	1.6	10-12-22-30	Similar to 1-MC, clay present.	=	Sample headspace 0 ppm with OVA, a 20.0 feet in sleeve.
						- - -	
5.0 — - -						-	
-						1	

 $\underline{\rm SILTY\ SAND}$ (SM), light brown, moist, very dense, fine grained.

Similar to 3-MC.



PROJECT NUMBER

LA070022.S0.10

BORING NUMBER

030A-1

SHEET 2 OF 2

	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
ELEVA				1104 3	DRILLING CONTRACTOR BEYLIK DRILLING	, INC., LA HABRA, CALIFORNIA			
			D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	/00 A CHUIDTU			
	LEVELS				START 10/30/92 FINISH 10/30				
SE.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
-									
40.0 —	40.0								
	42.0	4-MC	2.0	16-27-40-65	SANDY SILT (ML), brown, moist, hard, some sand lenses present.	Sample headspace 0 ppm with OVA, at 40.0 feet.			
45.0 —		·							
	*	, *·							
- 50.0 —	50.0								
-	52.0	5-MC	2.0	42-32-50-50	WELL GRADED SAND (SW), light brown, moist, very dense, becomes more coarse with depth, some silty layers present.	Sample headspace 0 ppm with OVA, at 50.0 feet.			
-						-			
55.0 —		-							
_									
-	60.0								
80.0 —	62.0	6- M C	2.0	30-35-67 -70/3"	SANDY SILT (ML), brown, moist, hard, some sandy layers present.	Sample headspace 0 ppm with OVA, at 60.0 feet.			
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \					Total Depth at 62.0 Feet.				
65.0 — -									
-									



BORING NUMBER

033A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA		
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22								
	LEVELS				START 10/29/92 FINISH 10/29/	/92 LOGGER K. HUCKRIEDE		
_=	-	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
OS		⊢Z	α±:	:		Start drilling at 15:25.		
5.0 —					POORLY GRADED SAND (SP), brown, dry to moist, loose, fine grained.			
-								
	10.0					- -		
10.0		1-MC	1.5	25-35-30-30	POORLY GRADED SAND (SP), dry to moist, dense, fine to medium grained, muscovite present.	Headspace 0.5 ppm on OVA.		
-	12.0							
-								
15.0	ě							
_								
_	-	•						
20.0 —	20.0	2-MC	1.6	15-40-44-86	POORLY GRADED SAND (SP), light brown, dry, very dense, fine grained.	Headspace reading with OVA similar to background.		
-	22.0							
25.0 —								
_	•							
-	-							
30.0 —	30.0	3-MC	1.5	40-50-40-61	Similar to 2-MC, brown, dry to moist, muscovite present.	Headspace reading with OVA similar to background.		
-	32.0							



BORING NUMBER

033A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMEN	IT LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID	6-1/2" OD, GUS PECH BRAT-22	

ATER	LEVEL				START 10/29/92 FINISH 10/29	/92 LOGGER K. HUCKRIEDE
XI.		SAMPLE	<u> </u>	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	AL	9.	¥	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
AC	BV,	BER	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION
		-	-	·		
-					<u> </u>	
4					·	
+					· -	
_					·	
0.0 —	40.0				POORLY GRADED SAND WITH CLAY	Hondonnon roading with OVA similar to
		4-MC	1.6	49-71-70-102	(SP-SC), brown, moist, very dense, fine	Headspace reading with OVA similar to background.
	42.0	- 140		<u> </u>	grained.	
1						
1						
+						
5.0 —					· —	
4					· -	•
4					· -	
4			,		- -	
.o 🚽	50.0				-	
		E 140	1.0	50-52-56-103	POORLY GRADED SAND (SP), very dense, fine to medium grained.	Headspace reading with DVA similar to background.
7	52.0	5-MC	1.0			
1				40 45 03 30	WELL GRADED SAND (SW), gray, dry, dense, some fine gravel.	
-	54.0	5A-MC	1.6	42-45-23-38	derioe, Johne Title gravel.	·
+	54.0					
.0 —					— "····································	. , .
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_					· · ·	
ا ٠						
	60.0			·		
ا ما	~		, =	25-19-57-64	<u>CLAYEY SAND</u> (SC), brown, moist, very dense, fine grained.	
1	62.0	6-MC	1.7	23-19-5/-04		
+	<u> </u>				Total Depth at 62.0 Feet.	
4			-	'		
.0 —						
1					The second se	
1						
+						



30.0

32.0

3-MC

1.5

10-75-50

30.0 -

PROJECT NUMBER	BORING NUMBER		1			
LA070022.S0.10	039A-1	SHEET	1	0F	2	

SOIL BORING LOG

PR	OJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE	ESSMENT LOCATION MCA	AS-EL TORO
EL	EVA:	TION _		·		DRILLING CONTRACTOR BEYLIK DRILLING	
DR	ILLI	NG MET	HOD AN	D EQUII	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	MARIN MINISTRAL PROPERTY OF THE PROPERTY OF TH
WA	TER	LEVELS	s		·	START 10/13/92 FINISH 10/13/	92 LOGGER A. GIMURTU
3	Ē		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
14 851 0	SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	SES	INI	T N N M M	HEC (FT)	(N) 4	MINERALOGY	TESTS AND INSTITUTE INTATION
						Surficial material consisting of turf approximately 1" thick.	Start drilling at 1:15.
	-					· _	-
ļ					,	-	
İ	_			,		<u> </u>	-
5.	0 —					SILTY SAND (SM), brown, fine grained, moist, with roots present.	
ľ	_						
	_						
	_					· · · · · · · · · · · · · · · · · · ·	
10	.o —	10.0				WELL GRADED SAND (SW), light brown,	Sample headspace 3 ppm at 11.0 feet
	_	12.0	1-MC	2.0	29-33-36-33	moist, dense, primarily medium and fine grained with some silt and sand up to 1.5 mm diameter.	with OVA.
	_						
_ ا							
15	U —			:			-
	_					· 	
1	-						
	^	20.0					
20	.U —	22.0	2-MC	1.5	11-21-25-18	<u>SANDY SILT</u> (ML), brown, moist, very stiff, large percentage fine grained sand with some clay.	Sample headspace up to 4 ppm at 21.0 feet at 23.0 with OVA.
-	-	22.0				Similar to 2-MC, hard.	
	-	24.0	2A-MC	1.5	7-32-50 -50/3"	• • • • • • • • • • • • • • • • • • •	-
25	.0 —						Slightly more difficult drilling at 24.0
	-					· -	feet.
	-					-	-
						·	

 \underline{SILT} (ML), brown, moist, hard, some fine sand and clay present, no observable soil structure.

Sample headspace 2 ppm at 31.0 and 30.5 feet with OVA.



BORING NUMBER

039A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILIT	Y ASSESSMENT	LOCATION MCAS-EL	TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC.,	LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT H	SA, 3-1/4" ID, 6-1/2" OD, INGERSOL-	RAND TH-10	·	
WATER LEVELS	a= . n + 10/13/92	ETHERL 10/13/92	A GIMURTU	

ATER	LEVELS	<u> </u>		· · · · · · · · · · · · · · · · · · ·	START 10/13/92 FINISH 10	/13/92 LOGGER A. GIMURTU
≆Ĥ		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_						
_						
_						
).0 —	40.0				Similar to 3-MC except layers of clay	Sample headspace 2 ppm at 40.5 fee
	42.0	4-MC	1.5	16-28-75 -50/1"	Similar to 3-MC, except layers of clay, sand, or silt exist with distinctive remnant soil structure.	with OVA.
-	1					
-	1					1
	1					
i.0						
. =						
_						
.0 —	50.0					
		5-MC	2.0	23-54-50-50	Similar to 4-MC.	Sample headspace 0 ppm at 50.5 and 51.0 feet with OVA.
_	52.0					
-				'		
.0 —						
-		:				
	-					
-			*.			
.0 –	60.0				Similar to 5-MC.	
-		6-MC		16-22-33-54		
-	62.0				Total Depth at 62.0 Feet.	
-	1					
-	-					
.0 —				1.		
-	1			, '		
-			-		<u>-</u>	
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-	4 .	1		la de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la const		-



 PROJECT NUMBER
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 LA070022.S0.10
 039A-2
 SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION DRIL	LING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/	'2" OD, INGERSOL-RAND TH-10	

	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10								
	WATER LEVELSSTART 10/14/92 FINISH 10/14/92 LOGGER A GIMURTU								
_			SAMPLE	•	STANDARD		COMMENTS		
 		STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION					
H	<u> </u>	-	H Z	<u> </u>		Surficial material consists of 1" of dead	Start drilling at 10:15.		
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- -					sod - -			
	. 1			·					
	5.0								
	-	10.0							
	0.0 —	12.0	1-MC	1.6	14-21-33-33	SILTY SAND (SM), tight brown, moist, dense, fine to coarse grained.	Sample headspace 0 ppm at 11.5 feet with OVA.		
	-								
	5.0 —					-	_		
	-	20.0							
2	- 0.09 - -	22.0	2- M C	. 1.7	11-16-20-30	SILTY SAND (SM), brown, moist, medium dense to dense, fine grained, clay present.	Sample headspace 0 ppm at 21.5 feet with OVA.		
	_								
	25.0	:		·			Driller notes balling soil which typically indicates more difficult drilling ahead at 25.0 feet.		
	-								
;	0.0 — -	30.0	3-MC	1.8	23-50-75-50	Similar to 3-MC, very dense. —	Sample headspace 4 ppm at 31.5 feet with OVA.		
	-	32.0							
\mathbf{I}							· · · · · · · · · · · · · · · · · · ·		



BORING NUMBER

039Å-2

SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVAT	ION _				DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA				
DRILLIN	NG METI	HOD AN	O EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	· · · · · · · · · · · · · · · · · · ·				
WATER	LEVELS	·			START 10/14/92 FINISH 10/14/	92 LOGGER A. GIMURTU				
x-		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
-			1			Soil appears to grade toward silts and clays with depth.				
_										
40.0	40.0	4-MC	2.0	22-33-53-50+	<u>SANDY SILT</u> (ML), brown, moist, hard, fine grained sand, some clay present,	Sample headspace 0 ppm at 41.5 feet with OVA.				
, -	42.0			17-22-64	distinctive remnant soil structure. ————————————————————————————————————					
-	44.0	4A-MC		-76/2"	Similar to 4A-MC.	Sample headspace 0 ppm at 45.5 feet with OVA.				
45.0 —	46.0	4B-C	2.0	77-68-95 -50/3"						
	-									
50.0 —	50.0			19-27-54	Similar to 4B-MC.	Sample headspace 0 ppm at 51.5 feet with OVA.				
-	52.0	5-MC	1.6	-64/4"						
55.0 —					<u>-</u>					
_					- -	<u>.</u>				
_	60.0	 								
60.0 —	62.0	6-MC	1.8	25-50-55 -100/5"	Similar to 5-MC.	Sample headspace 0 ppm at 61.5 with OVA.				
-	02.0				Total Depth at 62.0 Feet.					
65.0 —	-		-							
-	,					· · · · · · · · · · · · · · · · · · ·				
-						- -				



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PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE		
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	, INC., LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
WATER	LEVELS	s			START 11/16/92 FINISH 11/16/9	92 LOGGER K. HUCKRIEDE
₹F		SAMPLE	<u> </u>	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Start drilling at 09:25.
_					en en en en en en en en en en en en en e	-
-						
5.0 —					SANDY LEAN CLAY (CL), brown, moist, fine grained, mica present.	
-					gramou, mod present.	
-						
10.0 —	10.0				CLAVEY CAMP (CC)	
-	12.0	1-MC	1.2	19-28-28	CLAYEY SAND (SC), moist, dense, fine grained.	Headspace reading similar to background.
15.0 —						
-						
_					_	
20.0 —	20.0				SANDY LEAN CLAY (CL) brown moist	Handanana randina 0.8 nam os OVA
_	22.0	2-MC	1.0	7-10-10	SANDY LEAN CLAY (CL), brown, moist, stiff, medium plasticity, fine grained sand.	Headspace reading 0.8 ppm on OVA between sleeves.
			*			
25.0 —						
_				·		
_						
-					4	
-	30.0					
30.0 — -	30.0	3- M C	1.2	6-8-10	CLAYEY SAND (SC), brown, moist, medium dense, fine grained, mica present.	Headspace reading 2 ppm on OVA between sleeves.
-	32.0					
-	1.				+	
] -						-



BORING NUMBER

048A-1

SHEET 2 OF 2

PROJEC	T NAV	Y CLEAN	RCRA	FACILITY ASSE	SSMENT LOCATION MCA	S-EL TORO
ELEVA	TION			* *	DRILLING CONTRACTOR BEYLIK DRILLING.	INC., LA HABRA, CALIFORNIA
			D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	A HICKDIEDE
WATER	LEVELS				START 11/16/92 FINISH 11/16/9	······································
¥E.		SAMPLE		STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	AL	무	·ΒΥ	RESULTS	SUIL NAME, USCS BROUF STMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
FAC	INTERVAL	E A IBEF	0VE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL_STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SEE	INI	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	
		-				
	40.0					
40.0 —		4 46	0.0	7-12-13	WELL GRADED SAND (SW), tan, moist, medium dense.	Headspace reading 2.2 ppm on OVA between sleeves.
	42.0	4-MC	0.8	, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
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-			-			
				4.		· .
45.0						•
7						
-				\$.		
-						
-	50.0					
50.0	00.0			16-25-27	Similar to 4-MC, dense.	Headspace reading 0.1 ppm on OVA between sleeves.
-	52.0	5-MC	0.7	10-25-27		
-	02.0	-				
			<u> </u>		1	
-					1	
55.0 —					7	
-						
-		<u>.</u>		·	1	
-					*	
-	60.0				1	
60.0 —	00.0			10 04 00	SANDY LEAN CLAY (CL), brown, moist, very stiff to hard, fine sand.	Headspace reading 4 ppm on OVA between sleeves.
-	62.0	6-MC	0.5	18-24-26	_	
-	02.0	1			Total Depth at 62.0 Feet.	
						·
-						
65.0 —					· .	
-	1					
-	1.				·	
-	1				1	
-	1]		· †	



PROJECT NUMBER	BORING NUMBER					
LA070022.S0.10	048A-2	SHEET	1	OF	2	

PROJEC	T NAV	Y CLEAN	1 RCRA	FACILITY ASSE		S-EL TORO
ELEVA1					DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA
) EQUIP	MENT HSA, 3-	1/4 ID, 6-1/2" OD, GUS PECH BRAT-22	22 K HUCKRIEDE
	LEVELS		=	27.112.122	START 11/16/92 FINISH 11/18/9	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND WE NUMBER THE	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
0 0		- 2				Start drilling at 14:00.
-						
5.0 —	, .				SANDY LEAN CLAY (CL), brown, moist, fine grained sand, mica present.	
-	10.0				• • • • • • • • • • • • • • • • • • •	
10.0	10.0	1-MC	1.0	12-8-12	SANDY LEAN CLAY (CL), brown, moist, stiff, fine grained sand, mica present.	Headspace reading 0.3 ppm on HNu between sleeves.
_					<u>.</u>	
15.0						
-	20.0	-				
20.0 -	22.0	2-MC	1.3	5-8-10	Similar to 2-MC.	Headspace reading 5 ppm on OVA, 2.5 ppm on HNu.
-					- -	<u> </u>
25.0 —						- - -
30.0	30.0				- -	
30.0 —	32.0	3-MC	1.0	10-12-12	30-31' <u>POORLY GRADED SAND</u> (SP), tan, dry to moist, medium dense, fine grained. 31-32' <u>SANDY LEAN CLAY</u> (CL), brown, moist, stiff, fine grained sand.	Headspace reading similar to background.
-	į					



BORING NUMBER

0484-2

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILI	TY ASSESSMENT LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4 ID, 6-1/2" OD, GUS PECH BRAT-22	

DRILLI	NG MET	HOD AND	D EQUIF	MENT HSA, 3-	1/4 ID, 6-1/2" OD, GUS PECH BRAT-22		W. WOUDTED
WATER	LEVELS				START 11/16/92 FINISH	11/18/92	
₹F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
				-]	
-	40.0					-	
40.0 -		4-MC	1.4	9-10-19	<u>CLAYEY SAND</u> (CL), moist, medium dense, fine grained.	1	Headspace reading 0.4 ppm on OVA between sleeves.
-	42.0						
-						4	1
45.0 —				eg eg e		_	
-						4	· · · · · · · · · · · · · · · · · · · ·
						1	
1 -							en en en en en en en en en en en en en e
50.0 —	50.0	5-MC	1.0	15-16-16	<u>WELL GRADED SAND</u> (SW), tan, moist, medium dense.	4	Headspace reading 2.5 ppm on OVA between sleeves.
	52.0		· · · · · · · · · · · · · · · · · · ·	* .			
-						4	en en grande de la companya de la companya de la companya de la companya de la companya de la companya de la c La companya de la co
55.0 —				·			-
-						4	
				·		1	
80.0 —	60.0	6- M C	1.2	35-65-62	POORLY GRADED SAND WITH CLAY (SP-SC), light brown, very dense, fine grained.	-	Headspace reading 0.5 ppm on OVA between sleeves.
	62.0				Total Depth at 62.0 Feet.		
						1	
65.0 —						4	· -
			-				
			•			1	-



BORING NUMBER

049A-1

SHEET 1 OF 2

		,		
PROJECT NAVY CLEAN RCRA FACILITY ASSES	SMENT	LOCATION MCAS-EL T	ORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4			·	
WATER LEVELS NOT ENCOUNTERED	ETART 11/16/92	ETNICH 11/17/92	LOCKER C. POLITO	

WATE	R LEVEL	S NOT E	NCOUN		START 11/16/92 FINISH 11/17/9	
χĥ		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
	TEST RESULTS		STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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	-					
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	1					
	1					
5.0						
	1		1.			
	1					
	1					
	10.0					
10.0		1-MC	1.0	13-13-13-30	SILTY CLAY (CL/ML), brown, moist, very stiff, plastic, trace mica, trace fine sand.	HNu=2.0 ppm OVA=14.0 ppm
	12.0	1-MC	1.0			
			:	,	-	
15.0	_					
	4					
	4					•
	4					
20.0	20.0				SANDY SILT (ML), light brown, moist, hard,	HNu=0 ppm
	+	2-MC	2.0	14-20-31-32	micaceous, fine sand.	OVA=2.0 ppm
	22.0	<u> </u>				
	+					
	1					
25.0	-					
	1					
	1					
	1					
20.0	30.0					
30.0		3-MC	2.0	11-15-29-30	Similar to 2-MC.	HNu=9.0 ppm OVA=1.0 ppm
	32.0	J-ML	2.0	25 00		
		1				



PROJECT	NUMBER
LA07002	2.50.10

BORING NUMBER

049A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSES	SMENT	LOCATION MCAS-EL T	ORO	
ELEVATION	DRILLING CONTRACTO	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/	4" ID, 6-1/2" OD, INGERSOL	-RAND TH-10	No. 1712-151	
WATER LEVELS NOT ENCOUNTERED	START 11/16/92	FINISH 11/17/92	LOGGER C. POLITO	

NATER LEVELS NOT ENCOUNTERED					START 11/16/92	_FINISH .	.,,,,,,,		
₹F	SAMPLE STANDARD PENETRATION				SOIL DESCRIPTION	<u> </u>		COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL MOISTURE CONTENT, RELATIVE I OR CONSISTENCY, SOIL STRUCTU MINERALOGY	., COLOR, DENSITY URE,		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
		-							
	4								
	40.0						-		
0.0	42.0	4-MC	2.0	14-16-27-37	Similar to 3-MC.	•		HNu=11.0 ppm OVA=1.0 ppm	
+	42.0						1		
5.0									
			,						
0.0	50.0				CLAYEY SILT (ML/CL), brown, m	noist, hard		HNu=100.0 ppm OVA=1.0 ppm	
-	52.0	5-MC	2.0	40-80-80-80			1	отя-1.0 ррш	
-							4		
5.0							-		
_							-		
-	60.0						1		
0.0	60.0	6-MC		15-36-70-100	SANDY SILI (ML), brown, moist, trace mica, fine sand.	hard,	+	HNu=150.0 ppm OVA=2.0 ppm	
+	62.0				Total Depth at 62.0 Feet.				
1									
5.0 —							-		
1									
4							4		



BORING NUMBER

049A-2

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO										
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4' ID, 6-1/2" OD, INGERSOL-RAND TH-10										
	LEVELS				START 11/17/92 FINISH	11/17/92	LOGGER C. POLITO			
					SOIL DESCRIPTION		COMMENTS			
DEPTH BELOW SURFACE (FT)				PENETRATION TEST RESULTS						
H H	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS			
FF	TEP	/PE	(T	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		TESTS AND INSTRUMENTATION			
200	=	ĹΣ	# <u>F</u>	(,,,						
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5.0 —						_	in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se			
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10.0 —	10.0		-		CTLTV CLAV (CLAN) broken maint band		UNIV12 0 00m			
"" _		1-MC 1.7 10-24-		10-24-24-30	<u>SILTY CLAY</u> (CL/ML), brown, moist, hard, micaceous.		HNu=12.0 ppm OVA=2.0 ppm			
l _	12.0	Ē	1.1				_			
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15.0 —										
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-		:				7				
	20.0					1	-			
20.0 —	20.0			15-22-35/8"	Similar to 1-MC.		HNu=20.0 ppm OVA=0.0 ppm			
-	22.0	2-MC	2.0	15-22-35/6		1				
-						. 1				
-						7	-			
-					<u>.</u>	1				
25.0 —						=	-			
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-						. 🖠	-			
-						+				
-	30.5					-	·			
30.0 —	30.0				Similar to 2-MC.	-	HNu=7.0 ppm			
-		3-MC	2.0	20-33-33-50		+	OVA=0.0 ppm			
-	32.0					\dashv				
-	1					+				
1 .]					_	-			



BORING NUMBER

049A-2

SHEET 2 OF 2

PROJE	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4' ID, 6-1/2" OD, INGERSOL-RAND TH-10									
WATER	LEVELS	NOT I	ENCOUN	ITERED	START 11/17/92 FINISH 11/17/9	DOGGER C. POLITO				
T _F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
-	40.0									
40.0 —	40.0	4-MC	2.0	18-28-32-55	SANDY SILT (ML), light brown, moist, hard, fine sand, micaceous.	HNu=5.0 ppm OVA=3.0 ppm				
-	42.0									
-	-				- -					
45.0 —										
-										
50.0	50.0 52.0	5-MC	2.0	28-37-34-50	SILTY SAND (SM), light brown, moist, very dense, medium to fine sand, trace coarse sand and fine gravel, trace mica.	HNu=25.0 ppm OVA=4.0 ppm				
-		·								
55.0 — —										
-			,							
80.0 —	60.0				SANDY SILT (ML), brown, moist, hard, fine					
_	62.0	6-MC	2.0	28-80-67-80	sand, micaceous.	OVA=0.0 ppm				
-					Total Depth at 62.0 Feet. - -					
65.0 —										
-										



PROJECT NUMBER

LA070022.S0.10

BORING NUMBER

057A-1

SHEET 1 OF 2

PROJE	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
			D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10				
WATER	LEVELS		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	START 11/10/92 FINISH 1				
ăĒ.		SAMPLE	:	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
					Surficial material consisting of 1" topsoil and sod.	Start drilling at 1:45.			
					and sou.				
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5.0 —									
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-						-			
	10.0								
10.0 —	13.15			13-15-18-21	<u>SILTY SAND</u> (SM), brown, moist, medium dense, fine grained, some mica and clay	Sample headspace 15 ppm with OVA; 0 ppm with HNu, from sampler shoe.			
-	12.0	1-MC	1.0	13-13-16-21	present.	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			
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15.0 —						_			
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-	20.0			;		-			
20.0 —	20.0			11 10 00 30	Similar to 1-MC, lighter brown, medium dense.	Sample headspace 1 ppm with OVA; 500 — ppm with HNu.			
-	22.0	2-MC	1.0	11-16-26-30	dense.	- Ppin with tire			
-						1			
1 -						- 1			
-						<mark>1</mark>			
25.0 —		•				-			
						1			
-						- 1			
-						1			
-	30.0					- -			
30.0 —	32.0	3-MC	1.0	8-19-22-28	SILTY SAND (SM), brown, moist, medium dense, fine grained, some mica present and less than 5% coarse sized sand.	Sample headspace 0.5 ppm with OVA; 0 ppm with HNu from sampler shoe.			
_				i i					



BORING NUMBER

057A-1

SHEET 2 OF 2

PROJE	CT NAV	Y CLEA	N RCRA	FACILITY ASSI				S-EL TORO
	TION _			LICA 3			ILLING,	INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 WATER LEVELS								LOGGER A. GIMURTU
		SAMPLE		STANDARD			1,7, 1,7, 2	COMMENTS
P. F.	-	T		STANDARD PENETRATION TEST RESULTS	JOIL DEGOIST			COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SY MOISTURE CONTENT, RELA OR CONSISTENCY, SOIL ST MINERALOGY	TIVE DENSITY		DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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_	}						4	
	-	-					1	
40.0 —	40.0	ļ			POORLY GRADED SAND (S	D) light brown	4	Sample headspace 0 ppm with OVA; 0
-	42.0	4-MC	1.0	8-17-23-29	to gray, moist, dense, fine than 10% each of medium s silt, some mica present.	arained, less	1	ppm with HNu from sampler shoe.
-	-						-	
-							4	
45.0								
-							-	
-							4	
-							4	
-							4	
50.0 —	50.0				Similar to 4-MC.		+	Sample headspace 0 ppm with OVA; 0
_	500	5-MC	2.0	12-21-27-47			+	ppm with HNu from sampler shoe.
	52.0						4	
-			,			•	+	
-							1-4	
55.0 —	•						\dashv	
j					•		4	
							+	
							+	
ل	22.0						+	
60.0 — -	60.0	6-MC	1.5	19-27-39	SILTY SAND (SM), reddish dense, fine grained, some i	brown, moist, mica present.	1	Sample headspace 0 ppm with OVA, 100 ppm with HNu from sampler shoe.
- 1					Total Depth at 61.5 Feet.		-	
]]							4	
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65.0 —							4	
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PROJECT NUMBER	1	BORING NUMBER
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SOIL BORING LOG

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CA	LIFORNIA
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	
	11/16/02	D 000

DRILL	ING METI	HOD AND	EQUIF	PMENT HSA, 3-	-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10
WATER	RLEVELS				START 11/16/92 FINISH 11/16/92 LOGGER B. ORR
¥.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
100,	T	F2			Start drilling at 09:00.
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5.0 -					
	- .				
	10.0				
10.0 -		1-MC	1.2	9-12-16-20	SANDY SILT TO SILTY SAND (ML/SM), HNu=0 ppm brown to dark brown, moist, very stiff to medium dense, fine to medium sand.
	12.0				
	-				
	1				
15.0 -]				
-	1				
	4 .				
					-
20.0 -	20.0			11-20-30-31	SILTY CLAY (CL/ML), browm, moist, hard, micaceous, trace fine sand. HNu=0 ppm 0VA=0 ppm
	22.0	2-MC	1.6	11-20-30-31	
	1				
25.0 -					
	-		٠		+
	-				1
	†		-		
20.0	30.0				
30.0 -	1	3÷MC	1.8	7-14-19-22	Similar to 2-MC. HNu=0 ppm OVA=0 ppm
	32.0	·			
]		·		
	1				



PROJECT	NUMBER
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BORING NUMBER

057A-2

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESS	MENT	LOCATION MCAS-EL T	ORO	
ELEVATION		R BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	-
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4"	ID, 6-1/2" OD, INGERSOL-	-RAND TH-10		
WATER LEVELS	CTADT 11/16/92	ETNICH 11/16/92	LOGGER B. ORR	

WATER	LEVELS	·	<u>.</u>		START 11/16/92 FINISH 11/16	JOGGER B. ORR	
<u>*</u> E	SAMPLE STANDARD PENETRATION TEST				SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
40.0 —	40.0	4-MC	1,6	12-22-24-37	<u>SILT</u> (ML), brown, moist, hard, micaceous, trace sand.	HNu=0 ppm OVA=0 ppm	
· -	42.0	4 MC	1.0				
45.0 —		. '					
 - -			,				
50.0 —	50.0			7 10 00 4	<u>WELL GRADED SAND</u> (SW), brown to light brown, dry to moist, dense.	HNu=0 ppm OVA=0 ppm	
- -	52.0	5-MC	1,3	7-12-29-41	2.5, ary to		
55.0 —		·					
-		•					
60.0 —	60.0				<u>LEAN CLAY</u> (CL), brown, moist, hard, trace	HNu=0 ppm	
-	62.0	6-MC	1.9	9-13-31-45	fine sand. Total Depth at 62.0 Feet.	OVA=0 ppm	
- 65.0 —							
· ·-							
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I	PROJECT	NUMBER
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BORING NUMBER

059A-1

SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA					DRILLING CONTRACTOR BEYLING		LLING, I	NC., LA HABRA, CALIFORNIA	
DRILLI	NG MET	HOD AN	D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH				
WATER	LEVELS	3			START 11/11/92 FIN	NISH	11/11/92	LOGGER A. GIMURTU	
₹(SAMPLE		STANDARD	SOIL DESCRIPTION			COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COMMOISTURE CONTENT, RELATIVE DENS OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	LOR, SITY	·	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
					Surficial material consists of 1" topso sod.	oil an	d	Start drilling at 10:15.	
-					sou.		7		
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5.0 —									
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-	10.0							-	
10.0 —	12.0	1-MC	1.1	12-18-21-21	POORLY GRADED SAND (SP), light br moist, medium dense, fine grained, so mica and silt present increasing in percentage toward bottom of sample	ome		Sample headspace 22 ppm with OVA, 70 ppm with HNu at 12.0 feet.	
		-					_		
15.0 —							_		
_									
_	20.0								
20.0 —	22.0	2-MC	1.1	7-13-20-28	<u>SILTY SAND</u> (SM), brown, moist, med dense, fine grained, mica and 20-30 present.	dium)% silt		Sample headspace 4 ppm with OVA, 0.5 — ppm with HNu at 22.0 feet.	
-	22.0	-					4		
25.0 —			,						
-									
30.0 —	30.0	3-MC	0.9	9-15-20-26	Similar to 2-MC.			Sample headspace 0 ppm with OVA, 0 ppm with HNu at 32.0 feet.	
-	32.0						4		



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SHEET 2 OF 2

				· · · · · · · · · · · · · · · · · · ·						
PROJE	T NAV	Y CLEA	N RCRA	FACILITY ASSE	ESSMENT LOCATION MCA	S-EL TORO				
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLI	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10									
WATER LEVELS					START 11/11/92 FINISH 11/11/92					
종Ē		SAMPLE	г	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	/AL	2,2	RECOVERY (FT)	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE				
PTH	INTERVAL	TYPE AND NUMBER	000	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
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40.0 —	40.0				Similar to 3-MC, fine sand.	Sample headspace 0 ppm with OVA, 0.5				
-		4-MC	1.6	12-18-29-59	-	ppm with HNu at 42.0 feet.				
-	42.0									
-										
-					4					
45.0 —					4	<u> </u>				
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-	-									
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_	50.0				` . 1					
50.0 —	50.0	_			WELL GRADED SAND (SW), light brown to	Sample headspace 0 ppm with OVA, 2.5				
-	50.0	5-MC	1.5	23-21-44-57	gray, moist, very dense, fine to coarse grained, silt layers also present.	ppm with HNu at 52.0 feet.				
-	52.0									
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_					4.					
55.0 —										
-					4	-				
-						-				
-										
-	60,0									
60.0 —	61.0	6-MC	1.0	49-87	Similar to 5-MC, very coarse, particle sizes up to 3 centimeters in diameter.	Sample headspace 0 ppm with OVA, 0 — ppm with HNu at 61.0 feet.				
-					Total Depth at 61.0 Feet.	ppii with tive at one reet.				
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65.0				-						
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PROJECT NUMBER	BORING NUMBER
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SOIL BORING LOG

SHEET 1

PROJECT NAVY CLEAN RCRA FACILITY ASSES	SMENT	LOCATION MCAS-EL TORO				
ELEVATION	= ''	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	 		
DRILLING METHOD AND EQUIPMENT HSA, 3-1/	4" ID, 6-1/2" OD, INGERSOL-I	RAND TH-10				
WATER LEVELS	START	FINISH 11/12/92	LOGGER A. GIMURTU			

			EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10
WATER	LEVELS				START 11/12/92 FINISH 11/12/92 LOGGER A. GIMURTU
₹Ê		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
					Surficial material consisting of Start drilling at 14:50
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10.0 —	10.0				Complete and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second
10.0	12.0	1-MC	1.8	8-14-18-21	SILTY SAND (SM), brown, moist, medium Sample headspace 0 ppm with HNu at 12.0 feet.
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15.0 —				·	│
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	<u> </u> -			* .	
000	20.0				
20.0 —		2-MC	1,3	14-19-26-28	SILTY SAND TO SANDY SILT (SM/ML), Sample headspace 0 ppm with HNu at 22.0 feet. sand, mica present.
-	22.0				
-	1				
-					-
25.0 —					
_	1				_
] _					
].				
-	30.0				
30.0 —		3-MC	1.3	11-19-26-30	SANDY SILT (ML), brown, moist, hard, low plasticity, mica present, 20% fine grained sand. Sample headspace 0 ppm with HNu at 32.0 feet.
-	32.0				
-	1				
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PROJECT	NUMBER
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059A-2:

SHEET 2 OF 2

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	ESSMENT LOCATION MC.	AS-EL TORO		
DRILLING METHOD AND EQUIPMENT HSA. 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10								
DRILLI	NG METH	INA DOL	D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	i company		
WATER	LEVELS	; ·			START 11/12/92 FINISH 11/12/			
ı. SF	!	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
						_		
					· ·			
		, -]		
	40.0	,				1		
40.0 —	42.0	4-MC	1.6	14-16-22-24	WELL GRADED SAND WITH SILT (SW-SM), light brown to gray, moist, medium dense, all grain sizes present from 30 mm rock fragments to silt.	Sample headspace 0 ppm with HNu at 42.0 feet.		
-	42.0				Hayments to sit.	1		
-		.				1		
-						-		
45.0 —					<u> </u>	-		
-					· .	-		
-						-		
_						-		
-	<u> </u>					-		
50.0 —	50.0			32-78/5"	Similar to 4-MC, more coarse.			
-	51.0	5-MC	0.8	32-10/3		51.0 feet.		
-						4-11		
-						-		
						-		
55.0 —					-	- -		
]					↓		
.						↓		
.] ·					_		
						<u>.</u>		
900 -	60.0							
60.0	61.0	6-MC	0.6	52-56	Similar to 4-MC.	Sample headspace 0 ppm with HNu at 61.0 feet.		
-					Total Depth at 61.0 Feet.			
-						1		
-	1					1		
-		ĺ,				1		
65.0 —					_	-		
-	1					-		
_	1			1		 		
-	'					 		
-	1					-		



ROJECT NUMBER	BORING NUMBER				
A070022.RV	65B-1	SHEET	1	OF	1

PROJECT NAVY CLEAN RCRA FACILITY	ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HO	LLOW STEM AUGERS		

DRILLI		HOD AN	ם בטווזים	MENT HOLLOW	STEM AUGERS	
	LEVELS		- Edoli	ment	START 10-29-92 FINISH 10-29	9-92 LOGGER J.FRIZENSCHAF
		SAMPLE		STANDARD		COMMENTS
H BELOW ACE (FT)	RVAL	AND	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS	MUISTURE CUNTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
DEPTH BEL SURFACE	INTERVAL (FT)	TYPE AND NUMBER	RECO (FT)	6" -6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION
				. 11		Surface material consists of silty material, light brown, slightly moist.
					· · · · · · · · · · · · · · · · · · ·	
		·				
5.0 -	5.0					
	6.5	1-MC	1.5	4-6-12	5.0'-6.0': SILTY SAND, (SM), light brown, moist, medium dense,homogeneous.	OVA = 0 ppm HNu = 0 ppm
					6.0'-6.5': <u>SANDY SILT</u> , (ML), light to dark brown, moist, very stiff, homogeneous with white streaks, micaceous minerals.	
10.0 -	10.0					
10.0 -	12.0	2-MC	1.2	8-8-12-31	SANDY SILT. (ML), light to dark brown, moist, very stiff, homogeneous, micaceous minerals.	OVA = 0 ppm HNu = 0 ppm
	-					
15.0 -	15.0	3-MC	1.5	9-14-30	15.0'-16.0': SILTY SAND, (SM), light brown, moist, medium dense, homogeneous.	OVA = 0.1 ppm HNu = 0 ppm
	10.5				16.0'-16.5': WELL GRADED SAND, (SW), light brown to	
					light gray, moist, dense, homogeneous.	
20.0 -	20.0					-
	21.5	4-MC	1.0	12-25-33	20.0'-20.5': SILTY SAND, (SM), light brown, moist, medium dense to dense, fine grained sand,	OVA = 0 ppm HNu = 0 ppm
					homogeneous. 20.0'-21.5': <u>LEAN CLAY</u> , (CL), dark brown, moist, hard,	
	1250				homogeneous.	
25.0 -	25.0	5-MC	1.5	6-20-40	LEAN CLAY, (CL), dark brown, moist, hard, homogeneous.	OVA = 0 ppm HNu = 0 ppm
	1				END OF BORING AT 26.5 FEET	·
	1					
	1					
30.0 -						
	1					
1	-					,
	1					



BORING NUMBER

070A-1

SHEET 1 OF 2

	•									
PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	SSMENT LOCATION MCA	S-EL TORO				
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA										
		HOD AN	D EQUIP	MENT HSA, 4-	1/4" ID, 8" OD, FAILING F-10					
WATER	LEVELS	NOT E	NCOUN	TERED	START 10/29/92 FINISH 10/29/	LOGGER B. HARDESTY				
0.000					SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	٠	0	≿	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEDTIL OF CACING DOLLARS DATE				
A CE	RVA	A A N	VEF		MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS				
EPT	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MINERALOGY	TESTS AND INSTRUMENTATION				
	н	-2	#3			Start drilling at 11:25.				
-										
-					4	<u> </u>				
5.0 —						· .				
-										
-				·						
-					4					
-										
10.0 —	10.0				WELL GRADED SAND WITH CLAY (SW-SC),	HNu=0 ppm				
- -		1-MC	1.9	100-19-26-37	grayish brown, moist, dense.	OVA=O ppm				
-	12.0		·		CLAYEY SAND (SC), grayish brown, moist,	HNu=0 ppm				
-		1A-MC	1.4	10-16-20-21	medium dense, well graded.	OVA=O ppm				
-	14.0									
15.0 —					<u> </u>	-				
-										
-					·					
-						-				
-										
20.0 —	20.0				WELL GRADED SAND WITH CLAY AND	HNu=0 ppm				
-		2-MC	1.5	25-30-40-45	GRAVEL (SW-SC), grayish brown, moist, very dense, conglomerated sandstone in	OVA=Oppm				
-	22.0				tip of sampler.					
-										
-										
25.0 —						:				
-		·								
-					-					
-					<u>. </u>					
-						-				
30.0 —	30.0				LEAN CLAY WITH SAND (CL), grayish	HNu=Oppm —				
-		3-MC	1.4	8-5-22-39	brown, moist, hard, fine grained micaceous sand.	OVA=O ppm				
<u> </u> -	32.0									
-]									
]					·				



BORING NUMBER

070A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSE	SSMENT	LOCATION MCAS-EL TORO					
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., L.	A HABRA, CALIFORNIA				
DRILLING METHOD AND EQUIPMENT HSA, 4-1	/4" ID, 8" OD, FAILING F-10						
WATER LEVELS NOT ENCOUNTERED	CTART 10/29/92	ETNICH 10/29/92	LOGGED B. HARDESTY				

WATER LEVELS NOT ENCOUNTERED					START 10/29/92 FINISH 10/29	/92 LOGGER B. HARDESTY	
ă[.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	AL.	9	<u>¥</u>	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE	
TA	F.	BER	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS	
SUR	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION	
		1.					

-							
-	40.0	,					
40.0	70.0			40 02 04 07	Similar to 3-MC, fine to coarse grained sand.	HNu=0 ppm OVA=0 ppm	
-	42.0	4-MC	1.5	16-23-24-27	Juliu.	OTA-0 ppm	
-	42.0						
-							
-					· · · · · · · · · · · · · · · · · · ·		
45.0 —					<u> </u>		
_					<u>.</u> .		
-			·		<u>.</u>		
-					<u>-</u>		
-			-	-			
50.0 —	50.0				SANDY I FAN CLAY (CL) light brown to	HNu=O ppm	
_		5-MC	2.0	9-18-32-40	SANDY LEAN CLAY (CL), light brown to brown, moist, hard, fine grained sand.	OVA=O ppm	
_	52.0			·			
_							
55.0 —					·		
T							
-				.			
-							
	60.0				1		
30.0 —	20.0	_		14-36-40-42	<u>CLAYEY SAND</u> (SC), grayish brown, moist, dense, fine to medium grained.	HNu=0 ppm OVA=0 ppm	
_	62.0	6-MC	1.2	14-30-40+42		CTA O PPIII	
-	02.0				Total Depth at 62.0 Feet.		
-					· · · · · · · · · · · · · · · · · · ·		
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35.0					·	and the second second	
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PROJECT NUMBER	BORING NUMBER				
LA070022.S0.10	073A-1	SHEET	1	OF	2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMEN	T LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID,	6-1/2" OD, GUS PECH BRAT-22

DRILLI		HOD AN	n FOUT	PMENT HSA, 3-	DRILLING CONTRACTOR BETTIN DRILLING 1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	, Ind., ea mability, odeli olivita
	LEVEL		D Edoi	PIEIVI	START 10/20/92 FINISH 10/20	/92 LOGGER K. HUCKRIEDE
		SAMPLE		STANDARD		COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
0,		-			2" of asphalt at surface.	Start drilling at 08:25.
-					- -	
	1					-
]			·	· · · · · · · · · · · · · · · · · · ·	
5.0 —					- 	
3.0 -			-		LEAN CLAY WITH SAND (CL), dark brown, moist, fine grained sand, fine gravel present.	
-						-
-	j					-
-	10.0					= = = = = = = = = = = = = = = = = = = =
10.0 -		1-MC	1.7	13-21-11-35	LEAN CLAY WITH SAND (CL), brown, moist, very stiff, fine grained sand.	Headspace reading 5 ppm on OVA.
-	12.0				Similar to 1-MC.	-
-		1A-MC	1.7	40-30-14-26		· -
-	14.0					-
15.0 —					· ·	_
-						-
-					· · · · · · · · · · · · · · · · · · ·	-
-						
-	20.0				-	·
20.0 —	20.0			22-22-22-40	POORLY GRADED SAND (SP), brown, moist, dense, fine to medium grained.	Headspace reading similar to background on HNu.
-	22.0	2-MC	1.7	22-22-22-40	asinos, inia to modium granica.	- Dackground on Tillus.
						· -
25.0 —						·
_	·					
_						
-	*]
30.0 —	30.0				WELL GRADED SAND WITH SILT (SW-SM),	Headspace reading 5 ppm on OVA, 1 ppm
-		3-MC	1.5	36-44-24-40	yellow-brown, dry, dense.	on HNu.
-	32.0				4	4
-						
-					·	
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PROJECT	NUMBER
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BORING NUMBER 073A-1

PROJEC	T NAV	Y CLEAN		FACILITY ASSE		S-EL TORO
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA
DRILLII	NG METI	OD AND	EQUIP		/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
WATER	LEVELS	<u> </u>			START 10/20/92 FINISH 10/20/	
X()	SAMPLE			STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER		STANDARD PENETRATION- TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					-	
-	40.0	•				
40.0 — -	42.0	4-MC	1.7	60-41-44-46	WELL GRADED SAND WITH SILT (SW-SM), yellow-brown, dry, very dense.	Headspace reading at 5.2 ppm on OVA.
- 45.0 —		-				
-					SANDY LEAN CLAY (CL), brown, moist, dense, fine to medium grained sand.	
50.0 —	50.0				LEAN CLAY WITH SAND (CL), brown, moist,	Headspace reading at 1.5 ppm.
-	52.0	5-MC	1.9	54-67-66-100	hard, fine grained sand.	riculaspace reading of no pp
55.0 —						
- · · -				·		
60.0 —	60.0				POORLY GRADED SAND WITH SILT	Headspace reading at 1.4 ppm.
-	62.0	6-MC	1.7	38-49-49-38	(SP-SM), brown, moist, very dense, fine grained. Total Depth at 62.0 Feet.	
- -						
65.0 —]					



BORING NUMBER

76B-1

SHEET 1 OF 1

SOIL BORING LOG

DDO IECT	NAVY CLEAN RCRA	FACILITY	ASSESSMEN'
PROJECT.	NAVI ULEAN KUKA	FAUILIT	ASSESSMEN

LOCATION MCAS-EL TORO

ELEVATION _

DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGER

	11-3-02	11-4-02		
WATER LEVELS	START 11-3-92	FINISH 11-4-92	1 0661	-R

WATER	LEVEL	s			START 11-3-92 FINISH 11-4-9	DOGGER J.FRIZENSCHAF
×F.		SAMPLE	PENETRATION		SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
					1'-2': SILT. (ML), dark brown, moist, stiff,	Surface consists of 1'thick concrete layer. Hand augering from 2'-7'. No OVA or HNu readings.
5.0 -	5.0				homogeneous with black stains, locally saturated. 2'-5': SILT, (ML), as above except with calcerous veins and black stains.	
	7.0	1-MC	1.0	13-26-39-27	5'-6': SILTY SAND WITH GRAVEL. (SM), light brown, dry, dense, fine grained sand, homogeneous, with calcerous concretions.	OVA = 1 ppm HNu = 15 ppm
					In tip: SANDY SILT, (ML), light brown, dry, hard, homogeneous with micaceous minerals.	
10.0 -	10.0	2-MC	1.5	7-10-17	SILT. (ML), light brown, moist, very stiff, homogeneous, with white streaks and - micaceous minerals.	OVA = 0 ppm HNu = 0 ppm
	4		· ·			
15.0 -	15.0	3-MC	1.5	11-28-30	15.0'-15.5': SILT, (ML), light brown, moist, hard,	OVA = 0 ppm HNu = 0 ppm
	16.5				homogeneous. 15.5'-16.5': WELL GRADED SAND WITH SILT. (SW-SM), light brown, dry, dense, homogeneous.	
20.0 -	20.0			9.9.44	SILTY SAND, (SM), light brown, moist,	OVA = O ppm
	21.5	4-MC	1.5	8-8-14	medium dense, fine grained sand, homogeneous, occasional 0.5mm diameter gravel particles.	HNu = 0 ppm
-	05.2		. "			
25.0 -	25.0 26.5	5-MC	1.5	32-45-50	25.0'-26.0': WELL GRADED SAND, (SW), light brown to light gray, dry, very dense, homogeneous,	OVA = 0 ppm HNu = 0 ppm
-					occasional 1" diameter gravel particles. 26.0'-26.5': SILT, (ML), light brown, dry, hard, homogeneous with occasional 1" diameter	
30.0 -					gravel particles. - END OF BORING AT 26.5 FEET -	
-			٠.			



PROJECT	NUMBE
LA07002	2.S0.10

BORING NUMBER

083A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO											
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA										
DRILLI	ING MET	HOD AN	D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22						
WATER	LEVEL	s			START 10/26/92 FINISH 10/26.	LOGGER K. HUCKRIEDE					
₹£		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS					
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION					
					2" of asphalt.	Start drilling at 09:00.					
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-	-					· ,					
-	1			1		<u>.</u>					
5.0 —	1.					<u>-</u>					
-						·					
-	-					· · ·					
-					-						
-						-					
10.0 —	10.0	1-MC	1.0	29-30-50-79	POORLY GRADED SAND WITH CLAY (SP-SC), brown, moist, very dense, fine to medium grained, grains to 2 mm.	Headspace reading similar to background on OVA.					
-	12.0	ļ			Similar to 1A-MC, no coarse grains.	Headspace reading on OVA similar to					
-	-	1A-MC	1.7	57-61-56-49	4	background between sleeves.					
-	14.0										
15.0 —						· .					
-	1										
-	1				- 1						
-											
-	20.0										
20.0 —		2-MC	1.8	58-60-68-91	LEAN CLAY WITH SAND (CL), brown, moist, hard, fine grained sand.	Headspace reading on OVA similar to background between sleeves.					
-	22.0					-					
·-					-						
-	j				-						
25.0 —				i							
-					+						
-											
-					-	-					
	30.0										
30.0 — -	30.0	3-MC	1.9	76-60-41-40	WELL GRADED SAND (SW), yellow-brown, dry to moist, dense, rounded grains.	Headspace reading at 3.5 ppm on OVA, beween sleeves.					
-	32.0				Similar to 3-MC, very dense, trace fine						
_	34.0	3A-MC	1.8	50-161-56-64	gravel.						
1 7			-		. 7	· ·					



BORING NUMBER

083A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILI	TY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA	A, CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH E	BRAT-22	
	10 100 100	10 /00 /00	V 1000VD1EDE

SURFACE (FT)		SAMPLE		STANDARD PENETRATION	START 10/26/92 FINISH 10/26. SOIL DESCRIPTION	/92 LOGGER K. HUCKRIEDE COMMENTS
DEPTH BELOW SURFACE (FT)				STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELC SURFACE (F	INTERVAL	AND R				COMMENTS
' l		TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						
						<u></u>
40.0	40.0	4-MC	1.7	30-83-74-150	Similar to 3A-MC.	Headspace reading at 2 ppm on OVA, between sleeves.
	42.0	44 MC	1.8	58-110-85-79	Similar to 4-MC.	Headspace reading at 1.5 ppm on OVA, between sleeves.
, 1	44.0	4A-MC	1.0			
45.0 —					-	-
-	50.0					
50.0	52.0	5-MC	1,9	45-32-30-55	LEAN CLAY WITH SAND (CL), brown, moist, hard, fine grained sand.	Headspace reading at 0.0 ppm on OVA.
-	32.0					
55.0	: :	-				_
-					<u>-</u>	
60.0	60.0		·		Similar to 5-MC, dry to moist.	Headspace reading at 0.0 ppm on OVA.
	62.0	6- M C		50-57-63-67		Treadspace reading at 0.0 ppin on ova.
-					Total Depth at 62.0 Feet.	
8 5.0 —						_
-	-					



ROJECT	NUMBER	
A07002	2 DV	

BORING NUMBER

84B-1

SHEET 1 OF 1

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE		AS-EL TORO
ELEVA:	TION		<u>-</u>		DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUIF	MENT HOLLOW		
WATER	LEVELS	3			START 11-6-92 FINISH 11-9-	92 LOGGER J.FRIZENSCHAF
₹ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENŢS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						Surface material consists of pavement over lean clay with silt.
5.0 —	5.0 6.5	1-MC	1.5	8-20-28	SILT. (ML), dark brown, moist, hard, very plastic, homogeneous with green concretions and local approximately 1 cm	OVA = 0 ppm HNu = 0 ppm
-					diameter gravel.	
10.0	10.0				<u>SILT</u> , (ML), dark brown, moist, hard,	OVA = 9 ppm
_	12.0	2-MC	1.0	20-32-34-32	homogeneous, with micaceous minerals.	HNu = 4 ppm
	15.0					
15.0 —	15.0 16.5	3-MC	1.5	18-17-22	15.0' to 16.0': POODRLY GRADED SAND WITH SILT, (SP-SM), dark brown, moist, dense, homogeneous, with micaceous minerals.	OVA = 0 ppm HNu = 0 ppm
-					16.0' to 16.5': SILT. (ML), light brown, moist, very stiff, plastic, homogeneous.	Cuttings are <u>LEAN CLAY WITH SILT.</u> (CL), dark brown, moist,
20.0	20.0				POORLY GRADED SAND WITH SILT.	stiff,homogeneous, from 18' to 20'. OVA = 0 ppm
-	22.0	4-MC	1.5	18-32-50-61	(SP-SM), light brown, moist, very dense, homogeneous.	- HNu = 0 ppm -
	÷					
26.0 —	25.0 26.5	5-MC	1.5	9-22-36	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, dense,	OVA = 0 ppm HNu = 0 ppm
-	20.0				homogeneous with green concretions. END OF BORING AT 26.5 FEET	
30.0 -						_
-		,			- -	



BORING NUMBER

088A-1

SHEET 1 OF 2

PROJEC	T NAV	Y CLEA	N RCRA		PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING									
DRILLI	NG MET	HOD AN	D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22									
WATER	LEVELS	s			START 10/27/92 FINISH 10/27	/92 LOGGER K. HUCKRIEDE								
x F		SAMPLE	:	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS								
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION								
	 		<u> </u>			Start drilling at 09:25.								
-	·	'	•			-								
4		!			-	-								
-		!			· · ·	, -								
5.0					<u>LEAN CLAY WITH SAND</u> (CL), dark brown, moist, stiff, fine grained sand, trace muscovite.	_								
]					muscovite.									
						_								
]		1												
		1	-											
7	10.0													
10.0	11.0	1-MC	0.25	134-120/1"	LEAN CLAY WITH SAND (CL), dark brown, moist, hard, fine grained sand, trace	Refusal: 120 blow counts for 1 inch.								
7	12.0				muscovite.	Headspace reading 0.2 ppm on OVA.								
7	13.0	1A-MC	1.8	21-32-28-38	Similar to 1-MC.									
7														
		'												
15.0		'				-								
1														
+		!			j									
-					,	· · · · · ·								
	22.0	. !				-								
20.0	20.0		 	-	LEAN CLAY WITH SAND (CL), dark brown,	Headspace reading 0.2 ppm on OVA.								
4		2-MC	1.4	7-26-20-34	moist, hard, fine grained sand.	-								
	22.0		 											
		1			r de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	-								
				-	· 	-								
25.0					i i i i i i i i i i i i i i i i i i i	<u> </u>								
					j	_								
			!			• .								
			[·									
]	ļ													
30.0	30.0													
30.0		3-MC		35-42-30-46	Similar to 2-MC.	Headspace reading at 0.1 ppm on OVA.								
	32.0	3-MC	1.8											
1 7		2. 10		28-37-67-93	Similar to 3-MC.	Headspace reading 0.3 ppm on OVA.								
7	34.0	3A-MC	1.9	20 3, 3, 33										



BORING NUMBER 088A-1

SHEET 2 OF 2

				·		· · · · · · · · · · · · · · · · · · ·		
PROJEC	T NAV				SSMENT LOCATION MCA	AS-EL TORO		
	TION _				DRILLING CONTRACTOR BEYLIK DRILLING	. INC., LA HABRA, CALIFORNIA		
DRILLI	NG METI	INA DOF	D EQUIP	MENT HSA, 3-1	/4" ID, 6-1/2" OD, GUS PECH BRAT-22	/00 // AUNOVOTEDE		
$\overline{}$	LEVELS				START 10/27/92 FINISH 10/27			
SAMPLE STANDARD PENETRATION					SOIL DESCRIPTION	COMMENTS		
BEL SE (ΕRΥ	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING PATE		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
SUF	N.	Y NO.	RE ((FT	(N)	MINERALOUI			
		4			-	_		
					-			
_						· -		
-								
40.0 —	40.0				Similar to 3A-MC, less sand.	Headspace reading 0.2 ppm on OVA.		
_	:	4-MC	1.8	19-32-53-101	Similar to SA Pic, 1633 Saria.			
_	42.0				-	-		
-	·	-			· · · · · · · · · · · · · · · · · · ·			
-					-	<u>-</u>		
45.0 —					_	-		
_		:			<u>.</u>	-		
_					•	-		
_						-		
_						-		
50.0 —	50.0				SANDY CLAY (CL), brown, moist, very	Headspace reading 0.4 ppm on 0VA.		
-		5-MC	1.9	43-82-68-74	dense, fine grained sand.			
-	52.0				WELL GRADED SAND WITH CLAY (SW-SC).	Headspace reading 0.4 ppm on OVA.		
-		5A-MC	1,7	49-61-48-65	light brown, dry to moist, very dense.	-		
_	54.0				-			
55.0 —					<u>-</u>			
-			·	·	-	-		
-					· -			
-	-					-		
-					· -	-		
80.0 —	60.0				CLAYEY SAND (SC), brown, moist, very	Headspace reading similar to		
-		6-MC	1.8	51-100-91-131	dense, poorly graded, fine grained.	background.		
-	62.0				Total Depth at 62.0 Feet.			
-	-				-			
-	-					-		
65.0 ·	-					-		
-					<u> </u>	-		
-	-]	· · · · · · -			
-	1				· .	-		



 PROJECT NUMBER
 BORING NUMBER

 LA070022.S0.10
 088A-2

SHEET 1 OF

ROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT LOCATION_MCAS-EL TORO	_
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	_
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	_
ATER LEVELS	0740T 10/29/92 5747DU 10/29/92 LOCOED K HUCKRIEDE	

DR	ILLI	NG MET	HOD AN	D EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
WA	TER	LEVELS	·		· · · · · · · · · · · · · · · · · · ·	START 10/29/92 FINISH 10/29/	/92 LOGGER K. HUCKRIEDE
3	F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)		INTERVAL TYPE AND NUMBER RECOVERY (FT)		RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	_	I	, F Z	Œ 3		POORLY GRADED SAND WITH GRAVEL (SP), fine to coarse gravel.	Start drilling at 07:45.
	_						
-	-					e e e e e e e e e e e e e e e e e e e	
5.0	0 — -					<u>FAT CLAY</u> (CH), brown, moist, stiff. — —	
	-					-	
10.	o —	10.0			·	EAT CLAY HITH CAND (CH) Bala bases	45
	-	12.0	1-MC	1.5	26-40-42-42	FAT CLAY WITH SAND (CH), light brown, moist, hard, fine grained sand, muscovite present.	Headspace reading 4.5 ppm on OVA
				-			
15.	0 —						
			·				
	1					·	
20.	.0	20.0	2-MC	1.7	30-16-35-62	20-21.5' <u>POORLY GRADED SAND</u> (SP), yellow-brown, dry to moist, dense, fine to	Headspace reading 0.8 ppm on OVA, between sleeves.
		22.0				medium grained. 21.5-22' <u>WELL GRADED SAND</u> (SW).	
				-		-	-
25.	.0 —			Ī		_	-
	1	·					
30.	0 -	30.0				-	
30.	.u	32.0	3-MC	1.6	20-24-49-72	FAT CLAY WITH SAND (CH), brown, moist, hard, fine grained sand.	Headspace reading 0.6 ppm on OVA, between sleeves.
	1						· · · · · · · · · · · · · · · · · · ·
	4						



BORING NUMBER

088A-2

SHEET 2 OF 2

PROJEC	T NAV	Y CLEAN		FACILITY ASSE		AS-EL TORO
ELEVA			*		DRILLING CONTRACTOR BEYLIK DRILLING	, INC., LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD ANI	D EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
WATER	LEVELS	3			START 10/29/92 FINISH 10/29	/92 LOGGER K. HUCKRIEDE
≅ F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	٦	9	RY	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
FAC	INTERVAL	E AN BER	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SUR	INTE	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTROMENTATION
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					en en en en en en en en en en en en en e	
					- 	_
	40.0				e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	
40.0 —	40.0				<u>CLAYEY SAND</u> (SC), yellow-brown, dry, very dense, well graded, subrounded	Headspace reading 0 ppm on QVA, between sleeves.
-	40.0	4-MC	1.7	23-37-39-57	grains.	Detween sieeves.
-	42.0				-	
-					.	
					<u> </u>	-
45.0			-		-	<u> </u>
-					·	-
-					·	<u>-</u>
-						-
-					.·	
50.0 —	50.0				SANDY LEAN CLAY (CL), brown, moist,	Headspace reading 0.4 ppm on OVA,
_		5-MC	2.0	39-75-49-137	hard, fine grained sand.	between sleeves.
_	52.0					-
						_
					-	_
55.0 —						<u></u>
33.0				·	· ·	
					_	_
				·		·
	60.0				-	
80.0				35-72-90-74	POORLY GRADED SAND WITH CLAY (SP-SC), brown, dry to moist, very dense,	Headspace reading 0 ppm on OVA, between sleeves.
-	62.0	6-MC	2.0	33-72-90-74	fine grained.	
-	02.0				Total Depth at 62.0 Feet.	
-						-
-					•	<u>-</u>
65.0 —			:		-	_
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PROJECT NUMBER	
LA070022.S0.10	

BORING NUMBER

091A-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	NT	LOCATION MCAS-EL TORO	
ELEVATION	_DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS		

WATER LEVELS					START 11/14/92 FINISH 11/	14/92 LOGGER C. POLITO
æF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
BELO CE (F	VAL	DN A	ERY	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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.						
5.0 —						-
.]						
	10.0			·		
10.0	10.0	1-MC	1.2	8-17	<u>CLAYEY SILT</u> (ML/CL), brown, moist, stiff, micaceous.	HNu=5 ppm OVA=0 ppm
-	12.0					Sampler only driven 15" due to hammer problems.
-						
15.0						
-						
4						
]	19.0				7.1.10	
20.0 —					Total Depth at 19.0 Feet.	Hole abandoned due to obstruction.
-						
1						
-				·		
25.0						_
]						
4						
30.0 —	•					
4						
]						



BORING NUMBER

091A-2

SHEET 1 OF 2

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASS	ESSMENT		LOCATIO	N MCAS	-EL TORO		
ELEVA				;		IG CONTRACTOR BE				LIFORNIA	
DRILLI	NG METI	HOD AN	D EQUIP	MENT HOLLOW						<u> </u>	
WATER	LEVELS						FINISH	11/14/92			
SAMPLE STANDARD PENETRATION				STANDARD PENETRATION TEST RESULTS		SOIL DESCRIPTION			CO	MMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	i Muisture lu	SCS GROUP SYMBOL NTENT, RELATIVE C NCY, SOIL STRUCTU	COLOR, ENSITY RE,		DEPTH OF CASIN DRILLING FLUID TESTS AND INST	G, DRILLING RATE LOSS RUMENTATION	
_											4
-								-			-
5.0 —				·				-			_
-			•					-			-
10.0	10.0							-			-
-	12.0	1-MC	1.5	12-14-23-23	SANDY SILT fine grained	(ML), brown, moist, sand, some clay.	very stif	f,]	HNu=0 ppm OVA=0 ppm		-
_		-									
15.0 —								-			_
-								4			=
20.0	20.0							.]			
-	22.0	2- M C	2.0	16-28-28-28	dense, fine of present.	<u>ND</u> (SC), light brown, grained sand, silt mic	dry, a		HNu=0 ppm OVA=0 ppm		-
_								1			-
25.0 —			•					-			
-								+			
30.0	30.0		,		MELL ODADE	TO CAMP (OU)			11N 0.0		
-	32.0	3-MC	2.0	35-50-46-46	WELL GRADE dense, trace silt.	<u>D SAND</u> (SW), gray, gravel to 3/8-inch;	ury, very trace	/ 	HNu=0.0 ppm OVA=1.0 ppm		_
-											-



PROJECT	NUMBE
LA07002	2.S0.10

BORING NUMBER 091A-2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO						
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA						
				PMENT HOLLOW		2 20 170
				TERED	START 11/14/92 FINISH 11/14/	
₹£		SAMPLE	T	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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-	-				· -	· · · · · · · · · · · · · · · · · · ·
-	-		į		- -	
40.0 —	40.0		_		POORLY GRADED SAND WITH GRAVEL	HNu=0.0 ppm
-	420	4-MC	1.2	50-76-100/4"	(SP), brown, moist, very dense, medium grained sand, gravel to 1-1/2-inch, trace	OVA=0.0 ppm
-	42.0				silt.	-
-	1				- -	<u>-</u>
-					-	
45.0 —						<u> </u>
] 					
_					_	
50.0 —	50.0				Similar to 4 MC	111111111111111111111111111111111111111
-		5-MC	1.0	70-100/4"	Similar to 4-MC.	HNu=0.0 ppm OVA=1.0 ppm
-	52.0		-		landaria de la companya de la compa	<u>-</u>
-						<u> </u>
-						
55.0 —						<u> </u>
-						
-					_	-
-						
-	60.0					
60.0 —		6-MC	1.3	45-88-100/4"	·	HNu=0.0 ppm OVA=5.0 ppm
	62.0	U-MC	1.0			
_					Total Depth at 62.0 Feet.	
_	·			·		
65.0						_
-						
_					·	
-					-	
-					<u> </u>	



DDO IFOT ANAMED	DODING MUMBER	-
PROJECT NUMBER	BORING NUMBER	
LA070022.RV	91B-1	

SOIL BORING LOG

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY	ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HO	LLOW STEM AUGERS		

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS						
WATER LEVELS NONE ENCOUNTERED					START 11-14-92 FINISH 11-14-	92 LOGGER C.POLITO
	SAMPLE STANDARD		T	SOIL DESCRIPTION	COMMENTS	
1 H H	A.	ᄝ	λ.	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6666.	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
100	H=	FZ	ш.			
					· · · · · · · · · · · · · · · · · · ·	
					·	
					-	# **
5.0 -	5.0				SILT. (ML), brown, moist, very stiff,	OVA = 0 ppm
-	-	1-MC	1.0	28-20-11-15	clayey, plastic, micaceous.	HNu = 0 ppm
	7.0					
-	1					
40.0	10.0				- -	-
10.0 -		2-MC	1.0	16-20-22-27	Similar to 1-MC.	
	12.0				OTITION and disk become party band	0/4 - 40
	13.5	2a-MC	1.0	30-33-75	<u>SILT.</u> (ML), reddish brown, moist, hard, clayey, trace mica, some black staining.	OVA = 40 ppm HNu = 5 ppm
1					-	
15.0 —	15.0				Layers of SILI. (ML), as above, and	OVA = 1 ppm
	17.0	3-MC	1.5	15-15-22-38	<u>SILTY SAND</u> , reddish brown, moist, dense, micaceous, fine grained sand.	HNu = 0 ppm -
	1					
]					
20.0 -	20.0				0) AV (0) \	-
.		4-MC	0.9	20-34-77-50	<u>CLAY</u> , (CL), brown, moist, hard, silty, micaceous.	OVA = 12 ppm HNu = 13 ppm -
	22.0				<u>-</u>	<u> </u>
	1				-	-
-	25.0		-		-	-
25.0 -	20.0	F	^ ^	15-26-51-86	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, very dense,	——————————————————————————————————————
•	27.0	5-MC	2.0	13-20-31-00	micaceous.	
					END OF BORING AT 27.0 FEET	
						-
30.0 -						
	}		ę.			· · · · · · · · · · · · · · · · · · ·
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BORING NUMBER

092A-1

SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO						
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
					1/4" ID, 6-1/2" OD, GUS PECH BRAT-22		
	ATER LEVELS NOT ENCOUNTERED START 11/14/92 FINISH 1						
SÉ.		SAMPLE	: 	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6'-6'-6'	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
					3" asphalt at surface.	Start drilling at 07:15.	
						1	
]	
5.0 —							
3.0							
		} .					
]	
10.0 —	10.0						
10.0	44.5	1-MC	1.2	17-19-20	LEAN CLAY (CL), brown, moist, very stiff, trace coarse to fine sand.	HNu=0 ppm OVA=0 ppm	
	11.5						
						<u>]</u>	
	·					<u> </u>	
15.0 —			· -	<u> </u> 	_		
_							
1						4	
20.0 —	20.0	: .			POODLY CRADED SAMD WITH CLAY	1100-0-0-	
	21.5	2-MC	1.2	9-9-15	POORLY GRADED SAND WITH CLAY (SP-SC), tan, moist, medium dense, fine to	HNu=0 ppm OVA=0 ppm	
	21.0			· · · · · · · · · · · · · · · · · · ·	medium grained.		
						1	
25.0 —			,		· 		
-							
4							
	•			· • ·		4	
4						4	
30.0	30.0				30-30.5' CLAYEY SAND (SC), brown,	HNu=0 ppm	
-		3- M C	1.5	21-25-42	noist, fine grained.	OVA=1.5 ppm	
	32.0				30.5-31' WELL GRADED SAND WITH GRAVEL (SW), tan, moist, coarse to fine	-	
					gravel. 31-31.5' <u>WELL GRADED SAND</u> (SW), tan,	4	
]					oist, dense.	-	
1							



BORING NUMBER

092A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO						
ELEVATIONDRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA						
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22 WATER LEVELS NOT ENCOUNTERED START 11/14/92 FINISH 11/14/92 LOGGER HARDESTY						
				TERED	START 11/14/92 FINISH 11/14/	92 LOGGER HARDESTY
₹£		SAMPLE	<u> </u>	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						
-					·	
40.0.		·				
	41.5	4-MC	-1.5	17-31-36-38	WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC), tan, moist, dense,	
-	43.0				coarse to fine angular gravel.	-
45.0 —						_
-						
-			. N			
50.0	50.0 51.5	5-MC	1.1	18-26-48	SANDY LEAN CLAY (CL), brown, moist, hard, coarse to fine sand, trace fine gravel, becomes more clayey with depth.	HNu=0 ppm OVA=0 ppm
_					·	-
55.0 —			·			
-						
-						
60.0	60.0			16-40-33	60-60.5' <u>EAT CLAY WITH SAND</u> (CH).	HNu=Oppm —
	61.5	6-MC	1.5	10 40 33	gray, moist, hard, fine grained sand. 60.5-61.5' <u>SANDY LEAN CLAY</u> (CL), brown, moist, hard, fine grained sand.	OVA=O ppm
_					Total Depth at 61.5 Feet.	
es.o —						



PROJECT	NUMBE
LA07002	2.50.10

BORING NUMBER

092A-2

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVA			<u> </u>		DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA	
					1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	D2 HARDESTY	
$\overline{}$		SAMPLE	ENCOUN		START 11/14/92 FINISH 11/14/9	DOGGER HARDESTY COMMENTS	
오 ()				STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMEN 13	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
4		-			5" asphalt at surface.	Start drilling at 12:15.	
					-		
5.0 —						<u></u> 	
-							
400	10.0						
10.0	11.5	1-MC	1.3	16-20-17	SANDY LEAN CLAY (CL), brown, moist, very stiff, coarse to fine sand.	HNu=0 ppm OVA=0 ppm	
-						•	
- 15.0 —							
- -	-					- -	
20.0 —	20.0			19 10 00	CLAYEY SAND (SC), tan, moist, medium	HNu=0 ppm —	
-	21.5	2-MC	1.5	18-16-26	dense, fine grained sand, trace medium to coarse grains.	OVA=O ppm	
- -			-				
25.0 — -							
_							
30.0	30.0		٠.				
30.0 —	31.5	3-MC	0.6	24-29-40	Similar to 2-MC.	HNu=O ppm OVA=O ppm	
-						·	



BORING NUMBER

092A-2

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESS	SMENT	LOCATION MCAS-EL T	ORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4	1" ID, 6-1/2" OD, GUS PECH E	BRAT-22		
WATER LEVELS NOT ENCOUNTERED	START 11/14/92	ETNIEU 11/14/92	LOCCED HARDESTY	

	WATER	LEVELS NOT ENCOUNTERED		TERED	START 11/14/92 FINI	SH <u>11/14</u>	/92 LOGGER HARDESTY	
ſ	≆Î:		SAMPLE STANDARD PENETRATION		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS
	DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLO MOISTURE CONTENT, RELATIVE DENSI OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	OR, TY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	- 등 -		ΈŠ	HH H	(14)			Hit gravel layer at approximately 35-feet, conglomerated sandstone in cuttings.
	-	40.0		•				
	40.0 — -	41.5	4-MC	0.8	29-63-38	<u>CLAYEY SAND</u> (SC), tan to brown, moi very dense, well graded.	ist,	HNu=0 ppm OVA=0 ppm
	-							
	45.0 —							
	-						-	-
	50.0 —	50.0		-		SANDY LEAN CLAY (CL), brown, moist,	-	HNu=0 ppm
	-	51.5	5-MC	1.0	48-47-48	hard, fine to medium grained sand.		OVA=0.4 ppm
	- 		·					
	55.0 — -						-	-
	-							-
	60.0 —	60.0			07 22 40	LEAN CLAY WITH SAND (CL), brown, m	ıoist,	- - - - - - - - -
	-	61.5	6-MC	1.5	27-33-40	hard, coarse to fine grained sand. Total Depth at 61.5 Feet.		_ OVA=0 ppm
								¹ / ₂ − − − − − − − − − − − − − − − − − − −
	65 .0 —						-	- - -
	-							- - -
	-							-



BORING NUMBER

99B~1

SHEET 1 OF 1

ROJECT	NAVY CLEAN RCRA	FACILITY ASSES	SSMENT	LOCATION MCAS-EL	TORO		
LEVATIO				DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA			
	METHOD AND EQUIF		START 11-10-92	FINISH 11-11-92	LOGGER J.FRIZENSCHAF		
(T)	SAMPLE	STANDARD	SOIL DESCRIPT	ION	COMMENTS		
3 <u>m</u>		PENETRATION TEST					

WATER	ER LEVELS				START 11-10-92 FINISH 11-11-9	2 LOGGER J.FRIZENSCHAF	
≆£.		SAMPLE STANDARD PENETRATION		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
-			·			Surface material consists of one foot of depth of poorly graded sand with gravel – and white concretions, yellowish color.	
5.0 —	5.0	1-MC	1.5	5-6-10-17	SANDY SILT. (ML), light brown, dry, very stiff, homogeneous with small gravel.	OVA = 0 ppm HNu = 0 ppm	
	7.0	1 110			-	Strong odor of mothballs in all the soil samples.	
10.0 —	12.0	2-MC	2.0	10-19-21-28	10.0' to 11.0': SILT. (ML), light brown, moist, very stiff, plastic, white concretions and quartz particles.	OVA = 0 ppm HNu = 0 ppm	
-	14.0	2a-MC	1.75	4-16-21-31	11.0' to 12.0': POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, medium dense to dense, homogeneous with white concretions.	OVA = 0 ppm HNu = 0 ppm -	
15.0 —	15.0 17.0	3-MC	1.75	15-27-31-45	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, dense, homogeneous with white concretions.	OVA = 0 ppm HNu = 0 ppm	
-					SILT. (ML), dark brown, moist, hard, layered with white concretions and few quartz particles.		
20.0 — -	20.0	4-MC	2.0	18-20-20-23	20.0' to 21.0': SILT, (ML), dark brown, moist, very stiff,layered with white concretions, fairly	OVA = 20 ppm HNu = 0 ppm	
-					plastic. 21.0' to 22.0': <u>WELL GRADED SAND WITH GRAVEL</u> , (SW), – light gray, dry, medium dense, homogeneous.		
25.0 —	25.0	5-MC	2.0	16-24-27-38	LEAN CLAY, (CL), dark brown, moist, hard, homogeneous.	OVA = 20 ppm HNu = 0 ppm	
- -	29.0	5а-МС	1.5	20-12-33-40	POORLY GRADED SAND WITH SILT AND GRAVEL. (SP-SM), light brown, moist, dense, homogeneous.	OVA = 50 ppm HNu = 0 ppm	
30.0 — - -	· •				END OF BORING AT 29.0 FEET		



PROJECT	NUMBER
LA07002	2.RV

BORING NUMBER

99B-2

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASS	SSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HAB	RA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW	STEM AUGERS		· · · · · · · · · · · · · · · · · · ·

DRILLI	NG MET	HOD AND	EQUIF	MENT HOLLOW		
WATER	LEVELS	·			START 11-11-92 FINISH 11-11-	92 LOGGER J.FRIZENSCHAF
₃(-		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						Surface material consists of poorly graded sand with gravel and white concretions, yellowish color.
5.0 —	5.0				SANDY SILT WITH GRAVEL. (ML), light	OVA = 5 ppm
1	7.0	1-MC		7-12-20-28	brown, moist, very stiff to hard, homogeneous, with white concretions fairly plastic.	HNu ≖ O ppm
-						
10.0	10.0	2-MC	1.0	7-10-15-18	Similar to 1-MC, except very stiff.	OVA = 0 ppm HNu = 0 ppm
-	12.0	2a-MC	2.0	20-32-41-43	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, very dense, homogeneous with white concretions, some plasticity, fine grained sand.	OVA = 0 ppm HNu = 0 ppm
15.0	15.0	3-MC	2.0	13-20-21-43	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, dense, fine grained sand, homogeneous, with white concretions, some plasticity.	OVA = 0 ppm HNu = 0 ppm
-	17.0				Concretions, some plasmonty.	
20.0 —	20.0	4-MC	2.0	12-13-14-50	20.0' to 21.0'; WELL GRADED SAND, (SW), light brown,	OVA = 0 ppm HNu = 0 ppm
_	22.0		-		dry, medium dense, homogeneous. 21.0' to 22.0': POORLY GRADED SAND WITH SILT, (SP-SM), light brown, moist, medium dense, homogeneous.	
25.0 —	25.0	5 40		4-13-21-27	POORLY GRADED SAND WITH SILT AND GRAVEL. (SP-SM), light brown, moist.	OVA = 0 ppm HNu = 0 ppm
	27.0	5-MC	2.0	7 10 27 21	medium dense, homogeneous.	
					END OF BORING AT 27.0 FEET -	
30.0 —						
-					- -	
_	·				-	



BORING NUMBER

100A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSM	ENT	LOCATION_MCAS-EL_TO	ORO	
ELEVATION	DRILLING CONTRACTOR	ILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA		
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4"				
WATER LEVELS	START 11/16/92	FINISH 11/17/92	LOGGER J. FRIZENSCHAF	

AIER	LEVELS	·			START 11/16/92 FINISH 11/17/	92 LOGGER J. FRIZENSCHAF
(FT)		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELO SURFACE (F	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-			١		Surface material consists of yellowish silty sand with gravel, overlain by a 4-inch thick asphalt layer.	Start drilling at 16:00. Hand augered 0–5' prior to drilling.
					• • • • • • • • • • • • • • • • • • •	
.o. –	·					
-						
0.0	10.0			10 00	POORLY GRADED SAND WITH SILT	HNu=0 ppm
	11.8	1-MC	1.8	16-22-18-20	(SP-SM), light brown, dry, medium dense, trace to little clay, homogeneous with white concretions.	OVA=0 ppm
-		,				
.0 -			•			
	. :				•	
0.0	20.0	2-MC	1.8	12-13-18-29	20-21 <u>LEAN CLAY</u> (CL), light brown, moist, very stiff, little to some silt, homogeneous	HNu=0 ppm OVA=1 ppm
.]	22.0	2-MC	1.0		with dark stains. 21-22' <u>POORLY GRADED SAND WITH SILT</u> <u>AND GRAVEL</u> (SP-SM), light brown, moist, dense, fine gravel, homogeneous.	
.0 — -		·			Change in color to reddish-brown.	
1						
0.0	30.0	3-MC	1.5	7-15-27-27	30-31' <u>WELL GRADED SAND WITH GRAVEL</u> (SW), reddish-brown, moist, medium dense,	HNu=4.0 ppm OVA=0.5 ppm
	31.5				homogeneous. 31–32 <u>LEAN CLAY</u> (CL), reddish, moist, hard, little to some silt, homogeneous with dark stains.	



BORING NUMBER

100A-1

SHEET 2 OF 2

					<u> </u>	 			
PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, MOBILE B-61									
WATER	LEVELS	s	-	<u> </u>	START 11/16/92 FIN	IISH <u>11/17/9</u>	2 LOGGER J. FRIZENSCHAF		
≆ F		SAMPLE		STANDARD	SOIL DESCRIPTION		COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6' -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COI MOISTURE CONTENT, RELATIVE DENS OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	LOR, SITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
200	=	ĹŽ	品币						
	40.0								
40.0 —	42.0	4-MC	2.0	16-28-37-41	POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), light brown, dry, d gravel up to 1/2-inch diameter.	ND lense,	HNu=1.2 ppm OVA=0.5 ppm		
-									
45. 0 —						. =			
-	50.0					1			
50.0 —	52.0	5-MC	2.0	4-10-36-50	50-51' Similar to 4-MC, trace to little clay. 51-52' Similar to 4-MC, very dense, r clay present.	Į.	HNu=1.8 ppm OVA=0.3 ppm		
-									
55.0 —				,					
_				·					
60.0 -	60.0	6-MC	1.8	11-17-29-41	Similar to 4-MC.	-	HNu=1.6 ppm OVA=0.5 ppm		
	62.0				Total Depth at 62.0 Feet.				
85.0 —									
_						-	• • • • • • • • • • • • • • • • • • •		



PROJECT NUMBER	BORING NUMBER			
LA070022.RV	101B~1	SHEET 1	OF 1	١,

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	· · · · · · · · · · · · · · · · · · ·
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA,	CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGERS		
			^ ^

	DRILLI	NG MET	HOD AN	D EQUII	PMENT HOLLOW	STEM AUGERS	
_	WATER LEVELS					START 11-14-92 FINISH 11-14	-92 LOGGER J.FRIZENSCHAF
	æ F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
	DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	<u> </u>		F 2	<u>a = </u>			Surface material consists of fine grained, brown silty sand with with graveland roots.
,	-	F.0			·		
	5.0 —	6.5	1-MC	1.0	10-10-19	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM), light brown, moist, medium dense, trace clay content.	OVA = 0 ppm HNu = 0 ppm
	-			1			
	10.0 —	10.0	2-MC	2.0	6-12-26	Similar to 1-MC, no clay.	OVA = 0 ppm HNu = 0 ppm
	15.0 —	15.0			10-15-25	15.0' to 16.0':	OVA = - ppm
	-	16.5	3-MC	1.5	10-13-23	Similar to 2-MC. 18.0' to 16.5': LEAN CLAY. (CL), light brown, moist, hard, silty, homogeneous with white concretions.	HNu = 0 ppm _
	20.0 —	20.0	4-MC	1.5	15-22-24	20.0' to 21.0': LEAN CLAY, (CL), light brown, moist, very stiff to hard, silty, homogeneous with white	OVA = 0 ppm HNu = 0 ppm
	- -					concretions. 21.0' to 21.5': POORLY GRADED SAND WITH SILT AND GRAYEL, (SP-SM), light brown, moist, medium dense to dense, homogeneous.	
,	25.0 — -	25.0 26.5	5-MC	1.5	10-12-17	LEAN CLAY, (CL), light brown, moist, very stiff, silty, with micaceous particles and black stains.	OVA = 0 ppm HNu = 0 ppm
	- - 30.0					END OF BORING AT 26.5 FEET	
	· -						
	-						



PROJECT NUMBER	BORING NUMBER				
LA070022.RV	102B-1	CHEET	•	ΛE	,

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA								
DRILLI	NG MET	HOD AN	D EQUIF	MENT HOLLOW	STEM AUGERS			
WATER	LEVELS	3			START 11-13-92 FINISH 11-	13-92 LOGGER J.FRIZENSCHAF		
≖ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
-						Surface material consists of light brown silty sand.		
-	5.0							
5.0 —	6.5	1-MC	0.7	5-11-18	POORLY GRADED SAND WITH SILT AND GRAVEL. (SP-SM), light brown, dry, medium dense, homogeneous.	OVA = 7 ppm HNu = 0 ppm		
-								
10.0 —	10.0	2-MC	1.5	9-19-20	Similar to 1-MC, except with some clay content, slightly plastic.	OVA = 8 ppm - HNu = 0 ppm		
-	·							
15.0 —	15.0 16.5	3-MC	1.5	10-21-22	15.0' to 16.0': Similar to 2~MC. 16.0' to 16.5':	OVA = 12 ppm HNu = 0 ppm		
					LEAN CLAY WITH GRAVEL, (CL), dark brown, slightly moist, very stiff, with dark stains and veins, and rust spots.			
20.0 —	20.0							
-	21.5	4-MC	1.5	20-31-42	POORLY GRADED SAND WITH SILT AND GRAYEL. (SP-SM), light brown, dense, homogeneous.	OVA = 8 ppm HNu = 0 ppm		
	ı	,						
25.0 —	25.0							
-	26.5	5-MC	1.5	15-20-31	Similar to 4-MC.	OVA = 5 ppm - HNu = 0 ppm		
					END OF BORING AT 26.5 FEET			
30.0 —								
-		ı						
-			÷					



BORING NUMBER PROJECT NUMBER 112A-1

LA070022.S0.10

SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVAT					DRILLING CONTRACTOR BEYLIK DRILLING	S, INC., LA HABRA, CALIFORNIA			
DRILLIN	NG METI	HOD AND	O EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22				
	WATER LEVELS START 11/09/92 FINISH 11/10/92 LOGGER K. HUCKRIEDE								
x F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
~									
-						- -			
5.0 —		·			POORLY GRADED SAND WITH SILT (SP-SM), dark brown, dry to moist, fine to medium grained.				
						-			
						.			
		·				<u>-</u>			
				·		↓			
10.0 -	10.0			:	ELASTIC SILT WITH SAND (MH), brown,	Headspace reading on OVA similar to			
	12.0	1-MC	1.0	20-30	moist, hard, micaceous, fine to medium sand.	background.			
-	12.10								
	·					- -			
-						-			
15.0						-			
						-			
			·			-			
-		:				-			
-					•	-			
20.0 —	20.0				Similar to 1-MC, very stiff.	Headspace reading 4 ppm on OVA,			
-		2-MC	0.8	10-20		_ between sleeves			
-	22.0					-			
-			:			-			
<u> </u>						-			
25.0 —					-	-			
-						-			
-						-			
					•	-			
_						-			
30.0	30.0				POORLY GRADED SAND (SP), light brown,	Headenace reading 3.0 ppm on OVA 0.4			
		3-MC	0.5	19-30	dry to moist, dense, medium grained.	Headspace reading 3.0 ppm on OVA, 0.4 ppm on HNu between sleeves.			
	32.0	3 1,50	0.0	·		<u> </u>			
-						_			



BORING NUMBER

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22
	#/00/00 #//0/00 K (BICKETER

DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22						
	LEVELS	•			START 11/09/92 FINISH 11/10/9	
≩ Ĥ		SAMPLE		STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					-	
40.0 -	40.0				-	
40.0	42.0	4-MC	1.4	40-54-87	CLAYEY SAND (SC), brown, moist to wet, very dense, fine to medium grains.	Headspace reading 3.5 ppm on OVA, 0.6 ppm on HNu between sleeves.
	42.0					
-						
45.0 —						
-		·				
						<u>.</u> -
50.0 —	50.0	5-MC	1.3	40-52-34	LEAN CLAY WITH SAND (CL), brown, moist, hard, fine grained sand.	Headspace reading 12 ppm on OVA, between sleeves.
-	52.0				.	
-				i.		
55.0 —						
-						
						·
60.0 —	60.0	6-MC	1.4	34-87	POORLY GRADED SAND WITH SILT (SP-SM),brown, moist, very dense, fine grained.	Headspace reading 2.0 ppm on OVA, between sleeves.
-	62.0				Total Depth at 62.0 Feet.	<u> </u>
-						
85.0 —						
				·		
-			-			



PROJECT NUMBER	BORING NUMBER						_
LA070022.S0.10	116A-1	SHEET	1	OF	2		

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION DRILLING	G CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" O	DD, GUS PECH BRAT-22	

DRILL	ING ME	THOD AN	ID EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	·
WATER	LEVEL				START 10/21/92 FINISH 10/21/	92 LOGGER K. HUCKRIEDE
ă F		SAMPLE	Ē	STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
		-				Start drilling 08:30.
					_	
5.0 —				,		
3.0					SANDY LEAN CLAY (CL), brown, moist, fine to medium grained sand, subangular	
_		1			particles.	
_]					
40.0	10.0					•
10.0 —	12.0	1-MC	1.7	13-28-24-50	SANDY LEAN CLAY (CL), brown, moist, hard, fine to medium grained sand, subangular particles.	OVA headspace similar to background.
-	12.0		_			
-						
-	1					
15.0 —		İ			-	
-	1					
-	1	l			· · · · · · · · · · · · · · · · · · ·	
-					_	
					· · · · · ·	
20.0 —	20.0	1			SANDY SILT (ML), light brown, dry to	Headspace reading 0.4 ppm on OVA, in
-		2-MC	1.8	11-17-20-25	moist, very stiff.	Headspace reading 0.4 ppm on OVA, in bag after 51 minutes.
-	22.0	ļ	<u> </u>			
_				·		
_						
2 5.0 —					<u> </u>	
-						
-						
-	,			.	_	
-						
30.0 —	30.0	<u> </u>			WELL GRADED SAND (SW), Yellow-brown,	
	32.0	ЗА-МС	0.5	25-28-34-56	dry to moist, very dense, trace silt, subrounded grains.	
-		2.40	17	30-32-36-38	Similar to 3A-MC.	Headspace reading 0 ppm on OVA between sleeves.
	34.0	3-MC	1.7	3 32 30 30	1	



PROJECT NUMBER	BORING NUMBER	
LA070022.50.10	116A-1	SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	L0	CATION MCAS-EL TORO	
ELEVATION	DRTI I	ING CONTRACTOR BEYLL	K DRILLING, INC., LA HA	BRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT				
BILLETIO HE THOS AND EGOT MENT		10 (01 (00	10/01/00	K THOKOTEDE

DRILL	LING MET	HOD AND	D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
	R LEVEL				START 10/21/92 FINISH 10/21/9	LOGGER K. HUCKRIEDE
∡ F	:	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
			·		- -	
40.0	40.0				SILT WITH SAND (ML), brown, dry to	Headspace reading 1.3 ppm on OVA, in
	42.0	4-MC	1.7	29-27-21-29	moist, hard, fine grained sand.	bag after 5 minutes. No headspace reading between sleeves.
	1					
45.0					SANDY SILT (ML), light brown, dry to moist.	
			· **		- -	
50.0	50.0	5-MC	1,8	46-40-35-48	SANDY ELASTIC SILT (MH), light brown, moist, hard, fine to medium grained.	Headspace reading 1 ppm on OVA, in bagafter 5 minutes.
	52.0	5A-MC		14-18-28-43	Similar to 5-MC.	
55.0	54.0			· · · ·		
	1					
	60.0					
60.0	62.0	6-MC	1.9	13-32-21-61	SANDY SILT (ML), light brown, moist, hard, fine grained sand.	Headspace reading 1.0 ppm on OVA.
	64.0	6A-MC	1.8	24-45-50-47	Similar to 6-MC.	
85.0					Total Depth at 64.0 Feet.	
	-					



BORING NUMBER

124A-1

SHEET 1 OF 2

Headspace similar to background between sleeves, 3 ppm on OVA in bag after 5 minutes.

SOIL BORING LOG

SURFACE (FT) SURFACE (FT) 1111FRVAL	TYPE AND NUMBER AND NUMBER		STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	START 10/15/92 FINISH 10/15/92 SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
		RECOVERY (FT)	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
1	; H-Z	<u>æ 5</u>			72010 7110 1110 7110112111711011
5.0				POORLY GRADED SAND (SP), brown, moist, loose, fine to medium grains.	Start drilling 08:07.
10.0	.0			POORLY GRADED SAND WITH SILT	Headspace similar to background.
12.	.0 1-MC	2.0	31-25-10-25	(SP-SM), brown, moist, medium dense, fine to medium grains.	
15.0					
20.0 20	.0				
22	.0 2-MC	2.0	27-30-40-35	(SP-SM), moist, dense, fine to medium grains.	Headspace similar to background.

<u>SILTY SAND</u> (SM), brown, moist, very dense, fine grains.

)

30.0

32.0

3-MC

1.9

28-15-37-60

30.0 -



PROJECT NUMBER	BORING NUMBER					
LA070022.S0.10	124A-1	CHEET	2	ΩE	2	

						·			
PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLI	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22								
WATER					START 10/15/92 FINISH 10/	15/92 LOGGER K. HUCKRIEDE			
_=		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	,		>-	STANDARD PENETRATION TEST RESULTS	COL NAME TIESE CHOIR CAMBOL COLOR				
A C E	INTERVAL TYPE AND NUMBER		RECOVERY (FT)		SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS			
PF.	E I	YPE UMB	MBE MBE	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION			
20.00	4	ĹΖ	吊戶	, , , , , , , , , , , , , , , , , , ,					
-						-			
-						4			
-						4.			
_						4			
40.0 —	40.0				POORLY GRADED SAND (SP), light brown,	Headspace similar to background.			
		4-MC	1.4	14-17-44-32	dry, dense, fine grained.	Treadspace similar to background.			
	42.0	4 140	1.7						
. 7			-	·		.]			
45.0 —					<u>POORLY GRADED SAND</u> (SP), brown, moist, fine to medium grains.				
-					The to headin grants.	1			
-									
-						-			
-									
50.0 —	50.0				POORLY GRADED SAND WITH SILT	Headspace between sleeves, 4 ppm on			
-		5-MC	1.8	17-34-49-52	(SP-SM), brown, moist, very dense.	- OVA.			
-	52.0				Similar to 5-MC.	-			
_		5A-MC	0.5	11-33-51-79					
-	54.0	· · · · · · · · · · · · · · · · · · ·				4			
55.0 —									
_						_			
_					•	<u>.</u>			
	. 1								
· · ·	60.0								
60.0 —				10-27-43-53	<u>POORLY GRADED SAND WITH SILT</u> (SP-SM), brown, moist, very dense.	-			
-	62.0	6-MC	1.8	10-27-43-53	,				
-	02.0				Total Depth at 62.0 Feet.				
-									
-									
65.0 —						-			
-	1				•	-			
-]								
-						-			



PROJECT NUMBER BORING NUMBER LA070022.RV

125B-1

SHEET 1 OF 1

					<u> </u>	·		
PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA								
			D EQUIF	MENT HOLLOW				
	LEVELS				START 10-28-92 FINISH 10-28	-92 LOGGER J.FRIZENSCHAF		
SAMPLE STANDARD				STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)		_		PENETRATION TEST RESULTS		·		
E E	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS		
PTH	TER ()	ABE.	00C	6" -6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION		
SGE	ZE.	ĭ₽	H.F.					
_					·	Surface material consists of light brown to light gray loose sand.		
		,						
-	5.0							
5.0 —	0.0	1.40	4.5	7-9-10	WELL GRADED SAND WITH GRAVEL. (SW),	OVA = 0 ppm HNu = 0 ppm		
-	6.5	1-MC	1.5		light brown, moist, medium dense, homogeneous structure, micaceous silica.	11144 · O pp.		
-			.*			\ -		
-					·	-		
					<u> </u>			
10.0 —	10.0				_	OVA = 0 ppm		
_		2-MC	1.5	26-28-28-50	10.0' to 11.0': CLAYEY SAND, (SC), light brown, moist, _	HNu = 0 ppm		
	12.0	2 MC	1.5		dense, with local cementation, light streaks 11.0' to 11.5:			
					Intermixed <u>CLAYEY SAND</u> , (SC), and <u>WELL</u> <u>GRADED SAND</u> , (SW), vertically			
-					laminated, <u>CLAYEY SAND</u> light brown to			
-	15.0				light gray, dry.			
15.0 —	15.0			18-22-34	CLAYEY SAND, (SC), light brown, moist, dense, homogeneous structure, with some	OVÁ = O ppm HNu = O ppm		
-	16.5	3-MC	1.25	10 22 04	subangular quartz minerals.			
-				,	-			
-						<u>-</u>		
-					-	-		
20.0 —	20.0					OVA = 0 ppm —		
_		4-MC	1,5	13-20-25-40	Drown, moist, dense, homogeneous	HNu = 0 ppm		
	22.0				structure, with small quartz pebbles.	· · ·		
				·				
-				-				
-	25.0							
25.0	20.0				POORLY GRADED SAND WITH GRAVEL.	OVA = 0 ppm HNu = 0 ppm		
-		5-MC	1.5	17-22-25	(SP), moist, medium dense, homogeneous - structure, with green, flat, elongated	nina - o ppiii		
-	27.0	 			gravel.			
-	-				END OF BORING AT 27.0 FEET	-		
-								
30.0 —					 	·		
_								
-	1			<u> </u>				
]				[· · · · ·]			
-	1	1			· · · · · · · · · · · · · · · · · · ·	_		



PROJECT NUMBER	BORING NUMBER
LA070022.RV	129B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSM	IENT	LOCATION MCAS-EL T	ORO .
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA	HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STE	M AUGERS		
***************************************	10-28-02	10-28-02	LEDITCHICCHAE

	LEVEL:	<u> </u>			START 10-28-92 FINISH 1	0-28-92 LOGGER J.FRIZENSCHAF
EF		SAMPLE	· · · · · ·	STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Surface material consists of about 2 feet of silt, light brown, dry, soft and homogeneous.
1						
	5.0					-
) 	6.5	1-MC	1.5	6-10-13	LEAN CLAY, (CL), dark brown, moist, stiff, homogeneous.	OVA = 2 ppm HNu = 0 ppm
1						
.	10.0					
, –	11.5	2-MC	1.5	6-13-31	10.0' to 11.0': SILT, (ML), light brown, dry, stiff, homogeneous.	0VA = 0.1 ppm HNu = 0 ppm
-					11.0' to 11.5': SILT. (ML), dark brown, moist, very stiff, homogeneous, with white streaks, micaceous minerals, fairly plastic.	
, 1	15.0			15-15-35	SILI. (ML), dark brown, moist, hard,	OVA ≈ O ppm
}	16.5	3-MC	0.5	15-15-35	homogeneous, with white streaks, micaceous minerals, fairly plastic.	HNu = 0 ppm
,	20.0				CTLT (MIX dark brown maint years stiff	No sample taken at original hole. New
4	22.0	4-MC	1.0	7-19-20-28	<u>SILT</u> , (ML), dark brown, moist, very stiff, homogeneous, with white streaks, micaceous minerals and small (1-2mm diameter) gravel particles, fairly plastic.	No sample taken at original hole. New hole drilled 5' distant for last two samples. OVA = 0 ppm
4						HNu = 0 ppm
, 1	25.0				CUT (MI) deals become project based	OVA = 0.8 ppm
	27.0	5-MC	1.0	12-19-23-37	SILT. (ML), dark brown, moist, hard, homogeneous, fairly plastic.	HNu = 0 ppm
4					END OF BORING AT 27.0 FEET	-
, <u> </u>	-					
	,					
1				·		·.
4						4



PROJECT NUMBER	. •	BORING NUMBE
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SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVA				 	DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA	
			D EQUII	PMENT HOLLOW			
WATER	LEVEL				START 10-19-92 FINISH 10-19	-92 LOGGER H.UNDERWOOD	
₹Ē.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
						Surface material consists of silty sand with gravel and cobbles.	
_	1			·		with graver and copples.	
] ~]					<u> </u>	
-			į				
-	5.0					-	
5.0 -	7.0	1-MC	1.5	5-11-12-26	LEAN CLAY WITH SAND/FAT CLAY WITH SAND. (CL/CH), brown and dark brown, dry to moist, very stiff, fine grained sand,	OVA = 0 ppm HNu = 600 ppm	
					micaceous crystals.		
]						-	
-	10.0				- 		
10.0 —	10.0		<u> </u>	15-18-25-32	SILT, (ML), brown, moist, hard, clayey, with	OVA ≈ 0 ppm HNu = 0 ppm	
7	12.0	2-MC	. 1,5	15-16-25-32	light brown stringers throughout, micaceous crystals.	· · · · · · · · · · · · · · · · · · ·	
	·					-	
-						· -	
-	15.0						
15.0 —	13.0				Similar to 2-MC.	OVA = 0 ppm	
-	47.0	3~MC	1.6	16-26-32-35		HNu = 350 ppm	
-	17.0					-	
-					-	-	
-							
20.0 —	20.0				Similar to 1-MC, trace sand.	0VA = 0 ppm -	
-		4-MC	1.7	11-20-23-31	Similar to I-Mo, trace saird.	HNu = 75 ppm	
-	22.0					-	
-					4	· -	
	-						
25.0 —	25.0					OVA = 0 ppm —	
_	26.5	5-MC	1.5	6-13-22	SILTY SAND, (SM), brown, moist, dense, fine to medium grained sand, micaceous crystals.	HNu = 0 ppm	
					END OF BORING AT 26.5 FEET		
				,		-	
30.0					-		
			1		· · · · · · · · · · · · · · · · · · ·	-	
					4	-	
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1 4				.			



BORING NUMBER 1378-1 PROJECT NUMBER LA070022.RV

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	· · · · · · · · · · · · · · · · · · ·
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALI	FORNIA
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGERS		

WATER	LEVELS	S			START 10-13-92 FINISH 10-13	-92 LOGGER H.UNDERWOOD
æF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6' -6' -6' -6'	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_				·	-	Surface material consists of approximately 0.4' thickness of asphalti pavement.
-					• •	
5.0 —	5.0 7.0	1-MC	0.8	5-5-9-10	SILTY SAND, (SM), brown, moist, medium dense, fine grained sand, micaceous crystals, >20% silt.	OVA = 1 ppm HNu = 1 ppm
-	7.0					
10.0	10.0	2-MC	1.5	8-9-15-25	Similar to 1-MC, except light brown cementing substance in microfractures.	OVA = 0 ppm HNu = 0 ppm
,	12.0					
15.0 —	15.0	3-MC	1,5	6-18-23-33	POORLY GRADED SAND WITH SILT. (SP-SM), brown to light brown, dry to moist, dense, fine to medium grained sand,	OVA = 0 ppm HNu = 0 ppm
-	17.0				micaceous crystals.	
20.0 —	20.0	4-MC	1.5	15-32-40	Similar to 3~MC.	0VA = 0 ppm HNu = 75 ppm
1 . 1	21.5	4-MC	1.5			гичи — 73 ррш
25.0 —	25.0		-		- -	0VA = 10 ppm
-	27.0	5-MC	2.0	11-17-31-37	Similar to 4-MC. END OF BORING AT 27.0 FEET	HNu = 4 ppm
-					-	
30.0 — -			•			



BORING NUMBER

138A-1

SHEET 1 OF 2

SOIL BORING LOG

			* *		JOIL BON	1110 200
PROJE	CT NAV	Y CLEA	N RCRA	FACILITY ASSE		AS-EL TORO
ELEVA	TION _		4.1		DRILLING CONTRACTOR BEYLIK DRILLING	6, INC., LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUII		1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	
	LEVELS				START 10/16/92 FINISH 10/16	/92 LOGGER A. GIMURTU
	1	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
ŞE.		[Γ	PENETRATION TEST		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS . TESTS AND INSTRUMENTATION
-					Surficial material consisting of 2 inches of bitumious pavement and 2 inches of subgrade stone.	Start drilling at 10:00.
-			,			
5.0 —					SILTY CLAY (CL/ML), dark brown, moist, some fine grained sand.	
-						
-	1	ŀ				
-				1 .		1
10.0 —	10.0		<u> </u>		SANDY SILT (ML), brown, moist, hard,	Sample headspace 105 ppm with HNu at
	1	1-MC	1.3	15-22-33-25	distinctive remnant soil structure present.	10.0 feet using plastic bag.
:-	12.0		ļ			· · · · · · · · · · · · · · · · · · ·
-						
٠.	4					
15.0 —					-	<u>-</u>
	20.0					
20.0 —		2-MC	1.6	10-15-15-20	SILTY SAND (SM), light brown, moist, medium dense, fine to medium grained, occasional clay nodules.	Sample headspace 5 ppm with HNu and 2.5 ppm with OVA at 21.5 feet using a plastic bag.
	22.0				Similar to 2-MC.	Sample headspace at 70 ppm with HNu
	1	2A-MC		9-18-21-25		and 1.0 ppm with OVA in a plastic bag.
-	24.0					
25.0 —	1				-	
	1			.		
	1					Driller notes a color change of 07.0
						Driller notes a color change at 27.0 feet.
	30.0					
30.0 —	-	3-MC	1.7	10-26-40-45	WELL GRADED SAND (SW), light brown to gray, moist, very dense, grain size varies from fine sand to 3.0 mm in diameter, no	Sample headspace 1 ppm with HNu at 31.0 and 33.0 feet; Draeger tube, 0 ppm benzene.

28-40-45-55

fines.

Similar to 3-MC.

3A-MC

32.0

34.0

1.9



BORING NUMBER

138A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
	TION				DRILLING CONTRACTOR BEYLIK DRILLING	G, INC., LA HABRA, CALIFORNIA		
	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10							
	LEVELS				START 10/16/92 FINISH 10/16			
₹Ē.		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
_ os	-	1 2	E S					
-						-		
-						-		
-						-		
-						-		
40.0 —	40.0				Similar to 3A-MC, except more coarse	Sample headspace 1 ppm with HNu and		
-		4-MC	1.6	28-30-31-60	particles.	OVA at 41.5 feet.		
-	42.0					-		
-						-		
-	-					4		
45.0 —	,					-		
_	1					<u> </u>		
_						4.		
_						_		
_						_		
50.0 —	50.0				Similar to 4-MC.	Sample headspace 0 ppm with HNu and		
_		5-MC	2.0	11-50-55-63	Similar to 4-MC.	OVA at 51.5 feet.		
_	52.0	0 110	2.0					
_								
_								
55.0 —					 	<u> </u>		
35.0 —								
· ·				,				
-			٠.	·				
	60.0							
60.0 —		6-MC	1.4	15-15-30-40	60–61' Similar to 5–MC. 61–62' <u>SILTY SAND,</u> light brown to gray, moist, dense, well graded.	Sample headspace at 0 ppm with HNu at 62.0 feet.		
-	62.0				Total Depth at 62.0 Feet.			
-	1					† · · · · · · · · · · · · · · · · · · ·		
-	1					-		
B5.0 —	1		-		-	-		
-	1					+		
-	1					-		
-	-					-		
-						-		



PROJECT NUMBER	BORING NUMBER	<u> </u>				_
LA070022.RV	139B-1	SHEET	1	OF	1	

PROJECT NAVY CLEAN RCRA FACILITY ASSESSME	NT LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS

DRILLI	NG MET	HOD AN	D EGUII	PMENT HOLLOW	STEM AUGERS	
WATER LEVELSSTART 10-15-92 FINISH 10-15-92 LOGGER H.UNDERWOO						
xF		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-		-2	25			Surface material consists of approximately 0.4' thickness of asphaltic pavement.
5.0 —	5.0				LEAN CLAVIEAT CLAV WITH CAND	OVA = 0 ppm -
-	6.5	1-MC	1.5	7-11-34	LEAN CLAY/FAT CLAY WITH SAND, (CL/CH), brown to dark brown, moist, hard, silty, fine grained sand, light brown feature in microfractures, clay is friable.	HNu = 85 ppm
_						
10.0 -	10.0					0VA = 0 ppm -
-	12.0	2-MC	1.4	18-27-36-43	<u>2LEAN CLAY/FAT CLAY WITH SAND</u> (CL/CH), light brown to brown, moist, hard, — less fine grained sand than 1-MC, more light brown features in microfractures. —	HNu = 10 ppm
_						
15.0 —	17.0	3-MC	1.2	23-40-42-50	GRAVELLY SILT WITH SAND, (ML), light brown and brown mottled, dry to moist, hard, clayey, fine grained sand, friable.	Gravelly zone from 15' to 20'. OVA = 0 ppm HNu = 20 ppm
20.0 —	20.0	4 46	15	15-21-40	POORLY GRADED SAND WITH SILT.	OVA = 0 ppm HNu = 30 ppm
- -	21.5	4-MC	1.5	10 21 40	(SP-SM), light brown to brown, moist, dense, fine grained sand, trace micaceous crystals.	HNU - 30 ppin
- 25.0	25.0					OVA = 0.5 ppm
	26.5	5-MC	1.5	19-20-45	POORLY GRADED SAND WITH CLAY. (SP-SC), brown, moist, dense, fine to coarse grained sand, trace micaceous crystals.	HNu = 17 ppm
-		·			END OF BORING AT 26.5 FEET	
30.0 —						<u>-</u>
-			.*			- -
-					-	



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SHEET 1 OF 2

		I	*• *	
PROJECT NAVY CLEAN RCRA FACILITY	Y ASSESSMENT	LOCATION MCAS-EL TORC		
ELEVATION	DRILLING CONTRACT	OR BEYLIK DRILLING, INC., LA H.	ABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT H				

ELEVA			·	UCA 2	UNILLING CUNTRACTOR DETERMINED	
) EQUIF	MENT MOA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	/OO - A CINUSTII
	LEVELS				START 10/23/92 FINISH 10/23.	
≆ F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	ہر	9	₩	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
H E	RV.	E AN)VE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS
E 2	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION
<u> </u>	-	F 2	ш =		Surficial material consisting of 2 inches of	01-1-10-0
-	ļ				bituminous pavement and 2 inches of subgrade gravel.	Start drilling at 10:20.
-					subgrade graver.	. •
_					<u> </u>	
-						
5.0					· · · · · -	_
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		,	-			
-]					·
-	1				en en en en en en en en en en en en en e	
-	10.0					
10.0	10.0				SANDY SILT (ML), brown, moist, medium	Sample headspace 12 ppm with OVA at
_		1-MC	1.8	7-15-17-17	dense, fine grained sand, distinctive remnant soil structure.	12.0 feet.
-	12.0				·-	
-				·		
-					· · · · · · · · · · · · · · · · · · ·	
15.0				,	_	<u> </u>
_						
_						
_						`.
	20.0					
20.0 —				8-25-12-12	Similar to 1-MC.	Sample headspace 0 ppm with OVA at 22.0 feet.
-	22.0	2-MC	0.0	0 23 12 12	•	
-	22.0				22-22.5' Similar to 2-MC. 22.5-23.5' <u>WELL GRADED SAND</u> (SW),	
-	240	2A-MC	1.8	13-13-16-20	brown, moist, medium dense.	·
-	24.0				23.5-24' <u>SANDY SILT</u> (ML), brown, moist, very stiff.	-
25.0 —	-				· 	-
-	-				_	-
_						
_	1				-	<u>.</u>
_]	[·	
30.0	30.0					
30.0		2 440	1.5	10-11-17-25	SANDY SILT TO SILTY SAND (ML+SM), reddish brown, moist, very stiff to medium	Sample headspace 12 ppm in drive shoe with OVA at 30.0 feet.
· · · -	32.0	3-MC	1.5	25	dense, occasional remnant structure and well graded sand layers.	
-	T			30-100	Similar to 3-MC, hard to very dense.	No advance with sampler from 32.5 on, decided to drill at 34.0 and sample for
-	34.0	3A-MC	0.7	30-100+		duplicate.
-	34.0				Cimilar to 2A_MC	
35.0 —	1	3B-MC	1.5	50-100-75/3"	Similar to 3A-MC.	· -
	36.0	1		1	•	<u>,</u>



BORING NUMBER

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SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASS	SESSMENT	LOCATION MCAS-EL T	ORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	· ·
DRILLING METHOD AND EQUIPMENT HSA, 3		RAND TH-10	·	
MATER LEVELS	10/23/92	10/23/02	A GIMUDTU	

WATE	R LEVELS				/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 	/92 LOGGER A. GIMURTU		
		SAMPLE STANDARD SOIL DESCRIPTION				COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
40.0	40.0	4-MC	2.0	20-30-45-50	Similar to 3B-MC, mixed in distinct deposits of ML and SM soils.	Sample headspace 0 ppm in drive shoe with HNu at 42.0 feet.		
45.0 _						-		
50.0 –	50.0	5-MC	1.7	40-91-100/3"	Similar to 4-MC, trace to some clay.	Sample headspace 0 ppm in drive shoe with HNu at 52.0 feet		
55.0 -								
60.0	60.0				Similar to 5-MC.	Sample headspace O ppm in drive shoe at 62.0 feet.		
_	62.0	6-MC	1.8	60-50-100	Total Depth at 62.0 Feet.	at 62.0 feet		
8 5.0						-		
70.0								



BORING NUMBER

145A-1

SHEET 1 OF 2

					<u> </u>	· · · · · · · · · · · · · · · · · · ·			
PROJE	ECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
DRILLI	NG MET	HOD AN	D EQUII	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10				
WATER LEVELS START 10/26/92 FINISH 10/26/92 LOGGER A. GIMURTU									
i ≆F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	AL	9	₽	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE			
F F F	INTERVAL	E AI	RECOVERY (FT)	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
H S	N	TYPE AND NUMBER	REC (F)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION			
_	-				Surficial material consisting of approximately 2.0 inches of sod.	Start drilling at 08:30.			
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.					 	_			
5.0 -									
" .					_ 	_			
_									
						_			
_						· ·			
10.0	10.0				CANDY CILT (MI) brown moint warm stiff.	Sample headenage 0 page at 10.0 feet in			
_		1-MC	1.5	11-20-15	SANDY SILT (ML), brown, moist, very stiff, some micaceous minerals and fine grain	Sample headspace 0 ppm at 10.0 feet in plastic bag with HNu.			
-	12.0				sand.	·			
_						·			
					<u>-</u>				
15.0 —						Driller notes darker colored soil from 17.0			
-					<u> </u>	to 18.0 feet, corresponding to HNu readings greater than 2,000 ppm in			
-					-	borehole.			
-		Ī				_			
-					-	<u> </u>			
20.0 —	20.0				SILTY SAND (SM), brown, dense, well	Sample headspace 20 ppm at 22.0 feet			
-		2-MC	1.8	17-25-25-30	graded.	with HNu in sampler shoe.			
-	22.0				·	-			
-						-			
-									
25.0 —					<u>. </u>	_			
-					· .	Color changes to dark brown.			
-					: :				
_									
-									
30.0 —	30.0				LEAN CLAY WITH SAND (CL), dark brown	8 ppm on OVA.			
-		3-MC	1.5	8-18-18	to black, moist, very stiff, fine grained sand.	5 ppm on HNu.			
-	32.0								
-									



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PROJECT NAVY CLEAN RCRA FACILITY ASSES	SMENT	LOCATION MCAS-EL TO	ORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4	4" ID, 6-1/2" OD, INGERSOL-R	AND TH-10		
WATED LEVELS	START 10/26/92	EINTSH 10/26/92	LOGGER A. GIMURTU	

	LEVELS		- EGOIL	MCN1	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 START 10/26/92 FINISH 10/26	/92 LOGGER A. GIMURTU
zF.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
1 1 1					- - -	
40.0	40.0				- <u>SANDY LEAN CLAY</u> (CL), brown, moist,	32 ppm on HNu.
	42.0	4-MC	1.7	12-40-40	hard, fine grained sand.	10 ppm on OVA
-						
5.0 — -	÷					
-	-				• • • • • • • • • • • • • • • • • • •	
0.0 — -	50.0	5-MC	1.5	35-70-80	POORLY GRADED SAND WITH SILT (SP-SM), light brown, dry to moist, very dense, fine grained.	17 ppm on HNu 18 ppm on OVA
_	52.0				• • • • • • • • • • • • • • • • • • •	
 0.i					<u>-</u>	
-					- - -	,
- 0.0	60.0				Similar to 5-MC.	500 ppm on HNu.
-	62.0	6-MC	1.0	35-106	Total Depth at 62.0 Feet.	
- - i.0 —			-			
-			,			
-				:	• • • • • • • • • • • • • • • • • • •	



BORING NUMBER

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SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASS	ESSMENT	LOCATION MCAS-EL T	ORO .	***
ELEVATION		BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-F	RAND TH-10		
MATER I EVELS	START 10/27/92	FINISH 10/27/92	LOGGER A GIMURTU	

			EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	LOGGER A GIMURTU
	LEVELS				START 10/27/92 FINISH 10/27/92	
≆F.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	MOISTORE CONTENT, RELATIVE DENSITY	F CASING, DRILLING RATE 3 FLUID LOSS ND INSTRUMENTATION
					Surficial material consisting of 1.0 inches of sod.	illing at 10:45.
	-	·				
	-					
	-					
5.0 -	-				<u> </u>	
	-				-	
	-					· · · · · · · · · · · · · · · · · · ·
	-				1	
l					-	
10.0 -	10.0				SANDY SILT (ML), light brown, dry, hard, fine grained sand, distinctive remnant soil shoe at	headspace 2 ppm from sampler -
İ	4	1-MC	1.0	25-39-30	fine grained sand, distinctive remnant soil shoe at structure.	12.0 feet.
	12.0					
	4				-	
].	-				<u> </u>	•
15.0 -	-				-	
ľ	4 .				+	
	-				-	
	-					
	4					
20.0 -	20.0				SANDY SILT (ML), dark brown, moist, hard, Sample fine grained sand, discoloration similar to shoe wi	headspace 20 ppm from sampler th OVA at 22.0 feet.
	4	2-MC		19-61-20	fine grained sand, discoloration similar to shoe wi oil staining.	th OVA at 22.0 feet.
	22.0				,	•
	4				-	
	4				 	
25.0	4					· ·
	-					
	4				-	
	-					
	4					
30.0 -	30.0		ļ			headspace 30 ppm from sampler
	4	3-MC	1.3	10-15-20	shoe wi	th OVA at 32.0 feet.
	32.0		ļ		4	
	4					
	-					
		1				· · · · · · · · · · · · · · · · · · ·



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SHEET 2 OF 2

BOJECT N	AVY CLEAN RCRA	FACILITY ASSES	SMENT	LOCATION MCAS-EL TO	ORO
				BEYLIK DRILLING, INC., LA	
ORILLING ME	ETHOD AND EQUI	PMENT HSA, 3-1/4	1" ID, 6-1/2" OD, INGERSOL-	RAND TH-10	
WATER LEVE	LS		START 10/27/92	FINISH 10/27/92	LOGGER A. GIMURTU
	CAMDLE	CTANDADD	פחזו הבפרסופד	TON	COMMENTS

DRILLI	NG METI	HOD AND	EQUIF	MENT HSA, 3-	/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	
WATER	LEVELS			,	START 10/27/92 FINISH 10	
SF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
				·		
-						
-	. ,					
40.0	40.0					
40.0 —		4-MC	1.5	40-63-75	Similar to 3-MC, mottled dark brown and gray black, hard, heavy odor.	Sample headspace 90 ppm from sampler shoe with OVA at 42.0 feet.
	42.0					
-						
·-						
45.0 —				i .		-
·						
· -					•	. †
-	ì					
	50.0					
50.0 — -	52.0	5-MC	1.5	16-30-65	Similar to 4-MC, free product observed in sample pores.	Sample headspace 500 ppm in plastic bag of soil obtained at 51.0 feet with OVA.
-	32.0					
-			-			
			·			
55.0 —						
-						
_						
-					·	
80.0 -	60.0					
-	62.0	6-MC	1.5	65-100/5"	<u>SANDY SILT</u> (ML), brown, hard, fine grained sand, distinctive remnant soil structure.	Sample headspace at 500 ppm in plastic bag of soil obtained at 61.0 feet with OVA.
-	1				Total Depth at 62.0 Feet.	
65.0 — -			* 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5			
	1				•	1



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SHEET 1 OF 2

				<u> </u>					
PROJEC	T NAVY CLE	AN RCRA	FACILITY ASSE	SSMENT	LOCATION_MC	AS-EL TORO			
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLI	NG METHOD A	ND EQU	PMENT HSA, 3-1	/4" ID, 6-1/2" OD, GUS PECH	BRAT-22				
	LEVELS			START 10/9/92	FINISH 10/12	/92 LOGGER K. HUCKRIEDE			
ξĤ	SAMPLE STANDA				PTION	COMMENTS			
ELOW (FT)	7		PENETRATION TEST	SOTI NAME LISTS GROUP S	VMBOL COLOR				

WATER	TER LEVELS				START 10/9/92 FINISH 10/12/	LOGGER K. HUCKRIEDE	
χf.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
-					2" asphalt <u>POORLY GRADED SAND</u> (SP), brown, moist, — fine grained sand, muscovite present.	Start drilling at 10:30.	
-							
5.0 —		•					
-							
10.0	10.0	4.46	4.0	10-12-24-27	POORLY GRADED SAND (SP), brown, moist, dense, fine grained sand, muscovite	Headspace reading 8 ppm on OVA.	
	12.0	1-MC	1.6		present.		
15.0 —							
-							
-	20.0	-					
20.0	22.0	2- M C	1.8	28-30-44-20	POORLY GRADED SAND (SP), light brown, dry, dense, fine to medium grained.	Headspace reading 5.5 ppm on OVA.	
-							
25.0 —							
-							
30.0			*				
-	32.0	3-MC	1.7	30-50-40-45	POORLY GRADED SAND (SP), brown, moist, very dense, fine grained sand.	Headspace reading 4 ppm on OVA.	
35.0 —	34.0 36.0	3A-MĊ	1.8	45-35-31-26	POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, dense, fine to medium grains, micaceous.	Headspace reading similar to background on OVA.	



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		1 3111111111111111111111111111111111111	· · · · · · · · · · · · · · · · · · ·

ROJEC	T NAV	Y CLEA	N RCŔA	FACILITY ASSE	SSMENT	LOCATION_MC	CAS-EL TORO				
							G, INC., LA HABRA, CALIFORNIA				
ILLIN	NG MET	HOD AN	D EQUI	PMENT HSA, 3-1	/4" ID, 6-1/2" OD, GUS PECH E	BRAT-22					
TER	LEVEL	s			START 10/9/92	FINISH 10/12	LOGGER K. HUCKRIEDE				
ĘF		SAMPLE		SAMPLE		SAMPLE		STANDARD	SOIL DESCRIPT	TION	COMMENTS
(구구)	٦	9	R	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYN	ABOL, COLOR,	DEPTH OF CASING DRILLING RATE				

WATER	LEVELS	3			START 10/9/92 FINISH 10/12/9	LOGGER K. HUCKRIEDE
≖Ĥ		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
40.0	40.0			·	Similar to 3-MC.	Upadagaa yaadiga similar ta
-	42.0	4-MC	1.6	13-20-25-30	Similar to 3-MC.	Headspace reading similar to background on OVA.
45.0 -			·			· · · · · · · · · · · · · · · · · · ·
<u> </u>						
50.0 - -	50.0 52.0	5-MC	1.4	13-45-75-75	SILTY SAND (SM), brown, dry to moist, very dense, well graded.	Headspace reading similar to background on OVA.
- 55.0 -						Driller notes hard drilling, cuttings show 0.5 to 1 inch gravel.
-	57.0 59.0	6-MC	1.6	21-50-55-65		Extremely difficult augering at 56.0 to 57.0 feet, auger refusal at 57 feet. Headspace reading 200 ppm on OVA at 58 feet.
80.0 -					Total Depth at 59.0 Feet.	00 (66)
-						
65.0 -						
70.0 - -						·



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SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY A	SSESSMENT	LOCATION MCAS-EL TO	RO	_
ELEVATION	DRILLING CONTRACTOR .	CH2M HILL/JEG		
DRILLING METHOD AND EQUIPMENT HOLL	OW STEM AUGERS - INGERSOLL RAN	ND .		_
	10-8-02	10-9-02	A CIMIDITI	

MATER	LEVELS	S	<u> </u>		START 10-8-92 FINISH 10-8-	92 LOGGER A.GIMURTU
SAMPLE S		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
1 1					-	Surface material consists of approximately 2" thickness of asphalti pavement over approximately 2" of gravel subgrade.
, -						
	5.0			,		
0 —	6.5	1-MC	1.5	20-14-12	WELL GRADED SAND, (SW), light brown, moist, medium dense, all size fractions from 3mm to silt, some interbedded zones of	OVA = O ppm
					brown silt or fine grained sand.	
-			1			
0 -	10.0	Ż−MC	1.5	17-28-23	SILTY SAND. (SM), brown, dense, fine grained, interbedded with zones of well	OVA = 0 ppm
-	11.5				graded sand.	
.						
0 -	15.0	3-MC	1.5	16-21-24	POORLY GRADED SAND. (SP), light brown, moist, medium dense, fine grained sand,	OVA = 3 ppm
	16.5	JMC	1.0		approximately 10% fine grained mica.	Ova - o ppiii
		·				
- - م	20.0					OVA = 40 ppm (Incide Berelais)
~	21.5	4-MC	1.5	36-64-50+	Similar to 3-MC, except very dense.	OVA = 40 ppm (Inside Borehole) OVA = 5 ppm
-						
ر ا ا	25.0					
	27.0	5-MC	1.5	13-17-13-20	Similar to 4-MC. except medium dense, coarser grained, slightly less mica.	OVA = 0 ppm
					END OF BORING AT 27.0 FEET	
0 _	•					
4						
		·				
4						



PROJECT NUMBER

BORING NUMBER

LA070022.50.10

160A-1

SHEET 1 OF 2

	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORU							
DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10								
			D EQUI	PMENT HSA, 3-		/O2 A CIMIDTU		
	LEVEL				START 10/15/92 FINISH 10/15/			
DEPTH BELOW SURFACE (FT)		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS		
Ⅱ	A	2~	RY.	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE		
FA	INTERVAL	E A	000	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS		
SEE	N.	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION		
	-				Surficial material consisting of Linch mostly dead sod.	Begin drilling at 13:00.		
	-				-			
	4							
5.0 -	1				· .	_		
]							
						Driller notes balled soil in borehole.		
]							
	10.0							
10.0				17-18-18-20	SANDY SILT (ML), brown, moist, very stiff, fine grained sand, distinctive remnant soil	Sample headspace 0 ppm with OVA and — HNu at 10.0 feet.		
•	12.0	1-MC	1.5	17-16-16-20	structure.	1114 dt 10.0 100 t		
	12.0				-			
-	1				·	·		
-	1		1	,	· -			
15.0 -						<u> </u>		
-					-			
-					-			
-	-				<u>-</u>	Difficult drilling from 18.0 to 22.0 feet.		
-	1				-	-		
20.0 —	20.0				21.5-22' WELL GRADED SAND (SW), light	Sample headspace 0 ppm with OVA and		
-		2-MC	1.4	8-16-22-18	21.5-22' <u>WELL GRADED SAND</u> (SW), light brown to gray, moist, medium dense, trace shell fragments.	HNu at 20.0 feet.		
-	22.0				Similar to 2-MC.			
		2A-MÇ	2.0	7-13-12-20	Similar to 2 Mo.			
. -	24.0							
25.0						·		
						·		
				! !				
.		;		r				
30.0 —								
30.0		·				· .		
•	32.0				1	. 1		
		2 110		18-24-30-30	Similar to 2A-MC, dense, no shell fragments.	Sample headspace 0 ppm with OVA and HNu at 32.0 feet.		
-	34.0	3-MC	1.8	10 E4 30-30				
-								
						1		



BORING NUMBER

160A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10								
WATER	LEVELS	s			START 10/15/92 FINISH 10/15/	/92 LOGGER A. GIMURTU		
z ⊢		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
-					-			
-					-			
40.0 -	40.0				·			
-	42.0	4-MC	О		·			
-	44.0	4A-MC	2.0	19-25-30-40	42-43' POORLY GRADED SAND (SP), moist, medium dense, coarse grained. 43-44' CLAYEY SILT (ML/CL), moist, hard, micaceous.			
45.0						Sample headspace 0 ppm with OVA and HNu at 44.0 feet.		
	-				Interbedded 1" to 6" layers of sands and silts as described in 4A-MC.			
-		·			sits as described in 4A-MC.			
50.0 —	50.0	5-MC	2.0	7-20-30-45		Sample headspace 0 ppm at 52.0 feet with OVA.		
	52.0							
		·				-		
55.0 —					· -			
-						· · · · · · · · · · · · · · · · · · ·		
20.0	59.0		0.0	37-90-110	Similar to 5-MC.	Driller notes silty, clayey soil at 59.0		
60.0 —	61.0	6-MC	2.0	07 00 110	Sampler refusal at 61.0 feet.	feet while augering. Sample headspace 0 ppm with OVA at 61.0 feet.		
_				·		- '.		
65.0								
	1		,			- -		
						- -		



PROJECT	NUMBER	
LA07002	2.RV	

BORING NUMBER

162B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSES	MENT LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW ST	M AUGERS

	LEVEL			PHENT TOTAL	START 11-11-92 FINISH 11-11-9	02 LOGGER J.FRIZENSCHAF
z F	SAMPLE STAN		STANDARD		COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						Surface material consists of poorly graded sand.
5.0 —	5.0 6.5	1-MC	1.5	8-19-4		OVA = 0 ppm HNu = 0 ppm
	10.0				hōmogeneous. - -	
-	12.0	2-MC	2.0	18-41-53-48	POORLY GRADED SAND WITH GRAVEL, (SP), light brown, moist, very dense, fine grained sand, trace clay, homogeneous, fine gravel.	OVA = 0 ppm HNu = 0 ppm
t5.0 —	15.0			10.03.50	SANDY SILI, (ML), light brown, dry, hard,	OVA ≈ 0 ppm
1	16.5	3-MC	≥1,0 	19-23-50	cemented, with white concretions, little to some clay.	HNu = 0 ppm
20.0 —	20.0	4-MC	1,5	11-18-30	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, medium dense to	0VA = 2 ppm HNu = 0 ppm
-	21.5				dense, homogeneous.	
25.0 —	25.0 26.5	5-MC	1.0	19-30-50+	SILT. (ML), light brown, dry, hard, cemented, with white concretions and	OVA = 0 ppm HNu = 0 ppm
30.0 —	20.0				veins. END OF BORING AT 26.5 FEET	
-			÷			



PROJECT NUMBER	BORING NUMBER
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SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10								
	LEVEL			I	START 11/10/92 FINISH 11/10/9				
0.W (FT)	 	SAMPLE	T	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS			
ᇤ	VAL	ON H	ЕВҮ	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
200	=	ÞΖ	E.F.						
-	1					Begin drilling at 09:00.			
-				-		-			
-	1								
5.0 —					i				
5.0 —					_				
_									
_									
10.0 —	10.0				SILTY SAND (SM), dark brown, moist,	HNu=0 ppm			
-		1-MC	1.8	6-6-11-13	medium dense, fine grained, trace mica.	OVA=O ppm			
-	12.0				-	-			
-	-			* .					
-	1				-	· ·			
15.0 —									
-					•				
-					· -				
						1			
20.0 —	20.0	·			6:-7:4.4.40				
		2-MC	1.5	16-20-22-25	Similar to 1-MC.	HNu=3.0 ppm OVA=0 ppm			
-	22.0								
-									
-				·					
25.0 —						-			
-						+			
-									
20.0	30.0				-	1			
30.0 —		3-MC	2.0	8-16-17-20	SANDY SILT (ML), brown, moist, very stiff micaceous, fine grained sand.	HNu=1.0 ppm OVA=3.0 ppm			
	32.0	J-MC	∠.∪						
						<u> </u>			
				·		1			



BORING NUMBER

164A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10									
WATER	LEVELS	i			START 11/10/92 FINISH	11/10/92	LOGGER C. POLITO		
₹F	. ;	SAMPLE		STANDARD	SOIL DESCRIPTION		COMMENTS		
<u> </u>				STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		DEDTH OF CARTNO DRIVENO SATE		
A CE	RVA	ER AN	VEF		MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MINERALOGY		TESTS AND INSTRUMENTATION		
700		F Z	ш=	·					
-						1			
-				·					
-						+	·		
-						+			
40.0 —	40.0				Similar to 3-MC, hard.	\dashv	HNU=1.0 ppm		
-		4-MC	1.5	20-20-25-28		+	OVA=O ppm		
-	42.0					4			
						4			
-						. 4	-		
45.0 —						\dashv	· ·		
-						4	4		
] _						4	-		
				·		4			
						4			
50.0 -	50.0				Similar to 4-MC.	_	HNu=1.0 ppm		
_		5-MC	1.8	17-26-35-35	Similar to 4 Mo.	4	OVA=0 ppm		
_	52.0	-		·					
						4	·		
				·			_		
55.0									
33.0		:							
	,								
_									
	60.0					.]			
60.0				11-14-22-23	SANDY SILT TO SILTY SAND (ML-SM), brown, moist, very stiff to medium dense,		HNu=0 ppm OVA=0 ppm		
-	62.0	6-MC	-1.9	11-14-22-25	fine to medium grained sand.	1			
	02.0				Total Depth at 62.0 Feet.				
						7			
-	.					1			
65.0 —						\dashv			
-						+			
-						+			
-						-	· · · · · · · · · · · · · · · · · · ·		
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BORING NUMBER

164A-2

SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 WATER LEVELS NOT ENCOUNTERED START 11/11/92 FINISH 11/11/92 LOGGER C. POLITO									
WATER					START 11/11/92 FINISH 11/11/9					
₹Ē		SAMPLE	I	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
						Start drilling at 12:45.				
			ŀ			_				
		,				·				
5.0										
]										
10.0	10.0				CILTY DAND (CM) brown moist modium	HNu=O ppm				
		1-MC	2.0	8-10-17-20	SILTY SAND (SM), brown, moist, medium dense, fine to medium grained, trace mica.	- HM4=0 ppm				
	12.0				en en en en en en en en en en en en en e					
15.0 —					·	_				
	-				en en en en en en en en en en en en en e					
					-					
					_					
20.0 —	20.0				Similar to 1-MC yeary dense	HNu=Oppm				
_		2-MC	2.0	13-21-38-49	Similar to 1-MC, very dense.	OVA=3.0 ppm				
	22.0									
_										
_						-				
25.0 —						-				
_					-	-				
_					<u>-</u>					
-										
						-				
30.0 —	30.0	<u> </u>	ļ		SANDY SILI (ML), brown, moist, hard, fine	HNu=0 ppm				
-		3-MC	2.0	23-36-40-40	grained sand, micaceous.	OVA=2.0 ppm				
-	32.0									
-					· 	_				
-						-				
-1	l	i	I .			·				



BORING NUMBER

164A-2

SHEET 2 OF 2

				· · · · · · · · · · · · · · · · · · ·	<u> </u>		
PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE		CATION_MCAS	
	TION _				DRILLING CONTRACTOR BEYLI		INC., LA HABRA, CALIFORNIA
					1/4" ID, 6-1/2" OD, INGERSOL-RAND TH		
WATER	LEVELS	NOT E	ENCOUN	TERED	STARTFINFINFIN	NISH <u>11/11/92</u>	LOGGER C. POLITO
SAMPLE STANDARD PENETRATION				STANDARD	SOIL DESCRIPTION		COMMENTS
DEPTH BELOW SURFACE (FT)	ب ا		≿	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, CO	I OR	
H B	RVA	AN	VEF		MOISTURE CONTENT, RELATIVE DENS OR CONSISTENCY, SOIL STRUCTURE,	STTY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
EPT CRE	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MINERALOGY		TESTS AND INSTRUMENTATION
_ o		ΗZ	æ <u>=</u>				
-						4	-
-						4	-
-				·		• 4	ing the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
-						4	
40.0 —	40.0				SILTY SAND (SM), brown, moist, ver	, -	HNu=0 ppm
-		4-MC	2.0	32-45-55-70	dense, fine grained.	' <u> </u>	OVA=1.0 ppm
_	42.0					1	
l _							·
_							
45.0							
45.0 —					•	7	
-			 			1	
-						. 🚽	·
-						-	· · ·
-	50.0						· · ·
50.0 —	50.0				POORLY GRADED SAND WITH SILT		HNu=0 ppm
-		5-MC	2.0	20-45-50-91	(SP-SM), brown, moist, very dense, to fine grained sand.	meaium -	OVA=1.0 ppm
-	52.0					4	·
-			,			+	·
-						4	·
55.0 —						4	-
_						4	· -
_						4	· . -
_							-
<u> </u>							·
60.0 —	60.0						
00.0		0.140		75-87-100	<u>SILTY CLAYSTONE</u> (CL/ML), brown, hard, some fine grained sand.	moist,	HNu=0 ppm OVA=0 ppm
-	62.0	6-MC	2.0	-100/5"	•	1	
-					Total Depth at 62.0 Feet.		
-				i		1	
-						4	•
8 5.0 —						\dashv	
						-	· · · · · · · · · · · · · · · · · · ·
-							en en en en en en en en en en en en en e
-						4	
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BORING NUMBER

171A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY	Y ASSESSMENT	LOCATION_MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HE	SA, 3-1/4" ID, 6-1/2" OD, INGERSOL-R	AND TH-10
	•	· · · · · · · · · · · · · · · · · · ·

	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10										
		LEVEL				START 10/12/92 FINISH 10/12/	/92 LOGGER A. GIMURTU				
	≆ Ê		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
	DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
	-					Surficial material consisting of 2 inches of bituminous pavement and 2 inches of gravel subgrade.	Start drilling 13:15.				
			·			-					
	5.0 —										
	-					• • • • • • • • • • • • • • • • • • •					
	10.0 —	10.0									
		12.0	1-MC	1.6	17-14-14-19	SILTY SAND (SM), moist, brown, medium dense, fine grained.	Sample headspace 0 ppm OVA and HNu at 11.0 and 10.5 feet.				
	_										
	15.0 -										
	20.0	20.0				WELL GRADED SAND (SW), light brown to	Sample headspace 0 ppm on OVA at				
		22.0	2-MC	1.8	17-20-24-24	gray, moist, medium dense.	20.5 and 21.0 feet.				
	· -						· • • • • • • • • • • • • • • • • • • •				
	25.0 — -										
	_										
	30.0 —	30.0	3-MC	1.8	20-14-13-23	SANDY SILT (ML), brown, moist, very stiff, 35% fine grained sand.	Sample headspace 5 ppm on OVA at 30.5 and 31.0 feet.				
	-	32.0	3A-MC	1.8	12-14-25-40	Similar to 3-MC, hard.					
1	-	34.0				<u>-</u>					



PROJECT NUMBE	R
LA070022.S0.10	

BORING NUMBER

171A-1

SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	TION _				DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA				
DRILLI	NG MET	HOD AN	D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10					
WATER	LEVELS				START 10/12/92 FINISH 10/12/					
₹Ē.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
	AL	9~	.R Y	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
SEE	NI LNI	F N	RE(F)	(N)	MINERALOGY					
_										
_										
-						• • • • • • • • • • • • • • • • • • •				
_										
40.0 —	40.0				Similar to 3-MC, very stiff with more clay.	Sample headspace 5 ppm on OVA at				
-		4-MC	1.4	11-14-20-21	animal to 5 Me, very still with more day.	40.5 and 41.0 feet.				
_	42.0				Similar to 4-MC, hard.	<u>-</u>				
i -		4A-MC	0.0	12-22-25-30	ammar to 4 Ma, hard.	,				
_	44.0					· · · · · · · · · · · · · · · · · · ·				
45.0 —					· · · · · · · · · · · · · · · · · · ·					
-					-	<u>-</u>				
					 	-				
-										
-						. ···				
50.0 —	50.0				Similar to 4-MC, interbedded with layers of	Sample headspace 0 ppm on OVA at				
-		5-MC	1.7	12-17-38-50	sandy, silty, and clayey materials.	50.5 and 51.0 feet.				
-	52.0				Similar to 5-MC.	· ·				
-	1	5A-MC	1.7	10-45-36-50		-				
-	54.0									
55.0 —										
-										
-				. •		·				
-										
-	60.0									
80.0 —	00.5			17-38-43-50	Similar to 5A-MC.	Sample headspace 0 ppm on OVA at 60.5 and 61.0 feet.				
-	62.0	6-MC	2.0	17-36-43-30						
-					Total Depth at 62.0 Feet.					
-										
~ ~										
03.0 -				,						
85.0 	62.0				Total Depth at 62.0 Feet.	-				



PROJECT NUMBER	BORING NUMBER		٠		<u>-</u>	
LA070022.50.10	172A-1	SHEET	1	0F	2	

		Y CLEAN	RCRA	FACILITY ASSE	SSMENT LOCATION MCA	
ELEVA		100 441		MENT HSA 3-1	DRILLING CONTRACTOR BEYER BRIEFING. 1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	INO., EA TREMA, OACT OWNER
	LEVELS			MENT TICK, 5	START 10/22/92 FINISH 10/22/	92 LOGGER K. HUCKRIEDE
₹ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_					2 inches of asphalt at surface. <u>LEAN CLAY WITH SAND</u> (CL), dark brown, moist, stiff, fine grained sand.	Start drilling at 08:15.
5.0 —					_	
_			•			
10.0 —	10.0				SANDY LEAN CLAY (CL), brown, moist, hard, fine grained sand.	Headspace reading between sleeves, similar to background on OVA.
-	12.0	1-MC	1.7	6-33-50-70	naru, mie granieu sanu.	similar to background on ova.
-						
15.0 —						
_			·			
20.0 —	20.0				POORLY GRADED SAND WITH CLAY	
-	22.0	2-MC	1.0	70-19-17-46	(SP-SC), brown, moist, dense, fine grained.	-
_	24.0	2A-MC	1.8	33-48-89-70	LEAN CLAY WITH SAND (CL), dark brown, moist, hard, coarse to fine grained sand.	Headspace reading similar to background on OVA.
25.0 -						_
-						
30.0 —	30.0			·	POORLY GRADED SAND WITH CLAY	Headspace reading similar to
-	32.0	3-MC	1.6	15-30-60-40	(SP-SC), light brown, moist, very dense, fine to medium grained.	background on OVA.
-						



BORING NUMBER

172A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASS	SESSMENT	LOCATION MCAS-EL T	ORO .		
ELEVATION	DRILLING CONTRACTOR	RILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORM			
DRILLING METHOD AND EQUIPMENT HSA, 3					
WATER LEVELS	START 10/22/92	FINISH 10/22/92	LOGGER K. HUCKRIEDE		
CAMBIE CTAMBARD	CON DECORIDE	ON	COMMENTS		

	NG METI LEVELS		EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22 START 10/22/92 FINISH 10/22/	/92 LOGGER K. HUCKRIEDE
₹Ê	:	SAMPLE		STANDARD	SOU DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-	40.0		•.			
40.0 —	42.0	4-MC	1.8	31-52-92-147	CLAYEY SAND (SC), brown, moist, very dense, fine to medium grains.	Headspace reading 0.4 ppm on 0VA.
-		4A-MC	1.9	37-55-66-70	SANDY LEAN CLAY (CL), brown, moist, hard, fine to medium grained sand.	
45.0 —						
-	-					
50.0 —	50.0 52.0	5-MC	1.8	24-26-30-53	WELL GRADED SAND (SW), yellow brown, dry to moist, very dense, particles subrounded.	Headspace reading 0.8 ppm on OVA, between sleeves.
-	00.0					
55.0 —						.* .*
60.0 —	60.0				- Same as 5-MC.	
-	62.0	6-MC		39-39-39-72		
- 85.0 —					Total Depth at 62.0 Feet. - -	
-						
-		-				



PROJECT NUMBER	BORING NUMBER
LA070022.RV	173B-1

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	SSMENT LOCATION MC.	AS-EL TORO
ELEVA1					DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
DRILLI	NG METI	HOD ANI	D EQUIP	MENT HOLLOW	STEM AUGERS	
	LEVELS				START 10-20-92 FINISH 10-20	0-92 LOGGER H.UNDERWOOD
₹Ē		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	7	0	₹۲.	PENETRATION TEST RESULTS	SOTI NAME USCS GROUP SYMBOL, COLOR.	DEBTH OF CACING DEBTH INC DATE
H B	RVA	AN SER	VEF	HEGGETG	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TRIBLES AND TRIBLES AND TAXABLE PROPERTY OF THE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERTY OF TAXABLE PROPERT
95. F.P.	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	MINERALOGY	TESTS AND INSTRUMENTATION
100					·	Surface material consists of
-					• • • • • • • • • • • • • • • • • • •	 approximately 0.3' thickness of asphaltic- pavement.
-						-
-					·	
-	r 0				• • • • • • • • • • • • • • • • • • •	-
5.0 —	5.0				SANDY LEAN CLAY/SANDY FAT CLAY.	OVA = 0 ppm HNu = 0 ppm
-	7.0	1-MC	2.0	6-8-10-18	(CL/CH), brown, moist, very stiff.	- HNU - 0 ppiii
-	7.0				-	-
-					· · · · · · · · · · · · · · · · · · ·	
-						-
10.0 —	10.0			8-11-20	SANDY LEAN CLAY/SANDY FAT CLAY.	Odor detected. Soil is discolored
-	11.5	2-MC	1.5	8-11-20	(CL/CH), grayish brown, moist, very stiff, fine grained sand.	slightly. Began drumming these soil cuttings in separate drum. OVA = 30 ppm
-					-	HNu = 0 ppm
-						<u> </u>
-				·	· · · · · · · · · · · · · · · · · · ·	
15.0 —	15.0				LEAN CLAY WITH SAND/FAT CLAY WITH	OVA = >1000 ppm
-		3-MC	1.7	13-18-28-30	SAND, (CL/CH), grayish brown, dry to moist, hard, fine grained sand, with trace	HNu = 100 ppm
-	17.0		<u> </u>		of light brown stringers.	-
					•	-
-					-	-
20.0 —	20.0				<u>SILTY SAND</u> , (SM), grayish brown, dry to	OVA = 600 ppm -
-	21.5	4-MC	1.5	13-20-31	moist, dense, fine grained sand, trace	HNu = 100 ppm
_					micaceous crystals.	<u>-</u>
-						-
_					·	<u> </u>
25.0 —	25.0					OVA = 500 ppm
_	ļ	5-MC	1.4	21-30-45-42	Similar to 4-MC.	HNu = 100 ppm
] _	27.0					
					END OF BORING AT 27.0 FEET	_
						<u> </u>
30.0						<u> </u>
30.0 —		1				
1 -]			,		
1	1					



PROJECT NUMBER	BORING NUMBER	
LA070022.RV	175B-1 SHEET 1 OF 1	

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	· · · · · · · · · · · · · · · · · · ·
	R BEYLIK DRILLING INC, LA HABRA	CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS		
		. =====================================

ATER	LEVELS	·			START 10-30-92 FINISH 11-2-9	LOGGER J.FRIZENSCHAF
₽F		SAMPLE	-	STANDARD	SOIL DESCRIPTION	COMMENTS
	/AL	O. B.	ERY	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE
SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
				,	_	Surface material consists of 6" thickness of asphalt pavement over 1-foot thick silt material, dark brown, plastic.
-						piastic.
	5.0					
.o <u> </u>	6.5	1-MC	1.5	10-15-20	<u>SILT</u> , (ML), light brown, moist, very stiff, homogeneous.	OVA = 400 ppm HNu = 70 ppm
-						
0.0	10.0	2-MC	1.5		SANDY SILI, (ML), light brown, moist, very stiff, homogeneous.	OVA = 1000 ppm HNu = 70 ppm
_	12.0	2-MC	1.0	13-15-25	SANDY SILT. (ML), light brown, dry, very	Floating product at 12 feet of depth.
-	13.5	2-MC	1.0		stiff to hard, homogeneous, with calcerous - concretions and gray stains.	
i.0 –	15.0			20-28-32-41	15.0' to 16.0':	OVA = 1000 ppm
	17.0	3-MC	2.0	20-28-32-41	SILT. (ML), light brown, dry, hard, homogeneous, with calcerous concretions, cementation.	HNu = 70 ppm
4					16.0' to 16.5': Similar to above with lens of <u>WELL GRADED</u> — <u>SAND</u> , (SW), light gray, moist, homogeneous.	
0.0 —	20.0	,			16.5' to 17.0': SILT. (ML), dark brown, moist, homogeneous, plastic.	OVA = 1000 ppm HNu = 90 ppm
-	22.0	4-MC	1.5	20-25-37-41	SILT. (ML), light brown, moist, hard, homogeneous, slightly plastic.	1114 00 pp.
					•	
5.0 —	25.0		-		SILT. (ML), light brown, dry, hard,	OVA = >1000 ppm
-	26.5	5-MC	1.5	26-42-50+	cemented, homogeneous with gray stains and white streaks.	HNu = 40 ppm
-					END OF BORING AT 26.5 FEET	
0.0 — -						
		ļ ;				



PROJECT	NUMBER
LA07002	2.RV

BORING NUMBER

176B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT		LOCATION MCAS-EL TO	RO .
ELEVATION	DRILL	ING CONTRACTOR	BEYLIK DRILLING INC, LA	HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGERS	3		
,		44 0 00	44 0 00	LEDIZENDOUAE

DRILLI	NG MET	HOD AND	EGUIF	MENT HOLLOW	STEM AUGERS	15DZ5100U45
MATER	LEVELS			<u> </u>	START 11-2-92 FINISH 11-2-6	
ĕÊ		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Surface material consists of 6" thickness of asphalt pavement over dark colored silt material.
 5.0 —	5.0					
	7.0	1-MC	1.5	10-10-11-20	<u>SILT.</u> (ML), dark brown, moist, very stiff, homogeneous.	OVA = >1000 ppm HNu = 20 ppm Free product at 6.5 feet (soil is soaked).
- 10.0	10.0					014
. =	12.0	2-MC	1.5	9-19-20-26	SILT. (ML), dark brown, moist, very stiff to hard, homogeneous, with white streaks.	OVA = >1000 ppm HNu = 45 ppm Soil at 10.0 feet nearly saturated with free product.
					_	
- 15.0 —	15.0					,
-	16.5	3-MC	1.5	15-30-35	15.0' to 16.0': SILTY SAND WITH GRAVEL. (SM), light to dark brown, moist, dense, homogeneous, fine grained sand, gray stains.	OVA = >1000 ppm HNu = 120 ppm
-					16.0' to 16.5': SILT WITH GRAVEL. (ML), light to dark brown, moist, hard, homogeneous.	
20.0 —	20.0				<u>SILT WITH GRAVEL</u> , (ML), light brown, dry,	OVA = >1000 ppm
-	21.5	4-MC	1.5	17-50-50+	hard, homogeneous, with gray stains, cemented at 21 feet (hardpan).	HNu = 120 ppm
_						
 25.0	25.0				SANDY SILT, (ML), light brown, moist, hard,	OVA = >1000 ppm
-	26.5	5-MC	1.5	27-40-50	cemented (hardpan), black stains. –	HNu = 120 ppm
-					END OF BORING AT 26.5 FEET -	
-						
30.0 —					<u>-</u>	
-						
-		·				
_	1	1				



PROJECT NUMBER	BORING NUMBER					
LA070022.RV	179B-1	SHEET	1	OF	1	

FNOUL	UI <u></u>	, OLLA	1110117	FACILITY ASSE		MUAS-EL TURU
ELEVA					DRILLING CONTRACTOR BEYLIK DRILL	ING INC, LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUIP	MENT HOLLOW	STEM AUGERS	
WATER	LEVELS	<u> </u>			START 10-16-92 FINISH 10-	-16-92 LOGGER H.UNDERWOOD
≖F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6' -6' -6' -6'	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
				·		Surface material consists of approximately 0.4' thickness of asphaltic-pavement.
-	-	•				Dark discolored layer with slight odor at ~2.5'. OVA = 4 ppm HNu = 130 ppm
5.0	6.5	1-MC	1.4	18-9-10	<u>SILT WITH SAND.</u> (ML), brown, moist, stiff, fine grained micaceous sand, trace clay.	OVA = 2 ppm HNu = 250 ppm
			: : :			
10.0 -	10.0					
10.0	11.5	2- M C	1.5	8-15-20	<u>SILTY SAND</u> , (SM), light brown to brown, dry to moist, medium dense, fine grained micaceous sand.	Second Hole: OVA = 0.5 ppm HNu = 0 ppm
15.0 —	15.0	3-MC	1.1	15-32-50-50+	SILTY SAND. (SM), olive gray to brown, moist, very dense, fine grained micaceous sand.	OVA = 0 ppm HNu = 20 ppm
20.0 —	20.0				Similar to 3-MC.	- OVA = 0 ppm
	21.5	4-MC	1.2	12-26-50+	Similar to 3 Mc.	HNu = 0 ppm
25.0 —	25.0					
20.0	26.5	5-MC		16-26-50+	POORLY GRADED SAND WITH SILT. (SP-SM), brown, dry to moist, very dense, fine to medium grained sand, with	OVA = 0 ppm HNu = 0 ppm
30.0 -					micaceous crystals. END OF BORING AT 26.5 FEET	



BORING NUMBER

186A-1

SHEET 1 OF 2

					·	JUIL L	001111	10 200
PDO IEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	ESSMENT	I OCATIO	N MCAS	-EL TORO
ELEVA						BEYLIK DRI	ILLING, I	INC., LA HABRA, CALIFORNIA
		HOD ANI) FQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-R			
	LEVELS				START 10/19/92	FINISH	10/19/9	2 LOGGER A. GIMURTU
		SAMPLE		STANDARD	SOIL DESCRIPTI		·	COMMENTS
9.E			>	PENETRATION TEST RESULTS	COT NAME UPOD CROUD DVM	201 001 00		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)		SOIL NAME, USCS GROUP SYME MOISTURE CONTENT, RELATIVE	'E DENSITY		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
FF	TE	YPE	EC0 :T)	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUMINERALOGY	CIUNE,		TESTS AND INSTRUMENTATION
מם	=	ΗZ	<u>R</u> F	•	Surficial material consisting o	of 2 inch		0
-			·		bituminous pavement and app	roximately 2	-	Start drilling at 09:00.
_					inches of subgrade stone. 1-2' <u>SANDY SILT</u> (ML), dark fine grained sand, clay prese	brown, moist,	-	
					Time grained said, ordy prese		4	
-							4	
5.0 —							4	
-							, 4	
-				•			4	
-							4	
_							4	
10.0 —	10.0				<u>SILT</u> (ML), reddish brown, mo	nist verv stif	.,	Sample headspace 2.0 ppm with OVA and
_		1-MC	2.0	8-14-15-17	some fine sand rich layers, d	istinctive	"	HNu from sleeve at 11.5 feet.
_	12.0			-	Tellingitt son structure.		4	
_								
_								
15.0					•	•	_	_
_							1	
<u> </u>								
_				11				
200	20.0							_
20.0 —		2 40	1.8	6-16-17-25	<u>WELL GRADED SAND</u> (SW), lig gray, moist, medium dense, sa	ght brown to ample.grades		Sample headspace 2.0 ppm with OVA and HNu from sleeve at 21.5 feet.
	22.0	2-MC	1.0		coarser with depth.			
_							.]	
· -							1	
					÷		1	
25.0 —							7	
-							1	
-	1			· · ·	:		1	
-	1						1	
-	30.0						1	
30.0 —	30.0			00 35 00 55	Similar to 2-MC, very dense.		-	Sample headspace 2.0 ppm with OVA and HNu from sample at 30.0 feet.
-	32.0	3-MC	1.9	20-35-60-55			. †	i i i i i i i i i i i i i i i i i
-	32.0						1	
-					-			



PROJECT NUMBER	BORING NUMBER					
LA070022.S0.10	186A-1	SHEET	2	OF	2	,

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE	ESSMENT LOCATION M	CAS-EL TORO
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLIN	NG, INC., LA HABRA, CALIFORNIA
			D EQUIP	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	A CIMIDIU
WATER	LEVELS				START 10/19/92 FINISH 10/1	
¥L.		SAMPLE	T	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						-
-						
40.0 —	40.0			45 00 35 40	Similar to 3-MC.	Sample headspace 3.0 ppm with OVA from sample at 41.5 feet.
-	42.0	4-MC	1.9	15-26-35-40		-
-	•					
45.0 —		٠.				- -
-						-
50.0 —	50.0				DI TV DING (DV) have a sixt days	-
-	52.0	5-MC	2.0	14-23-25-40	<u>SILTY SAND</u> (SM), brown, moist, dense, fine to medium grained.	Sample headspace 9.0 ppm with OVA from sample at 51.5 feet.
_						
55.0 —	,					-
_						
-						-
60.0 —	60.0	6-MC	1.8	14-100-100	Similar to 5-mc, very dense.	Sample headspace 1.0 ppm at 60.0 feet.
-	62.0				Total Depth at 62.0 Feet.	-
85.0						-
-						
-						



BORING NUMBER

187A-1

SHEET 1 OF 2

		i			
PROJECT	NAVY CLEAN RCRA	FACILITY ASSESS	MENT	LOCATION MCAS-EL T	ORO
ELEVAT	ION		DRILLING CONTRACTO	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA
DRILLIN	G METHOD AND EQUI	PMENT HSA, 3-1/4	" ID, 6-1/2" OD, GUS PECH	BRAT-22	
WATER L	EVELS		START 11/9/92	FINISH	LOGGER K. HUCKRIEDE
_	SAMPLE	STANDARD	SOIL DESCRIP	TION	COMMENTS

SAMPLE STANDARD SOIL DESCRIPTION COMMENTS		LEVELS			,	START 11/9/92	FINISH 11/9/9	2 LOGGER K. HUCKRIEDE
Start drilling at 09:35. Start drilling at 09:35. Start drilling at 09:35.	ĸF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIP	TION	COMMENTS
Start drilling at 09:35. Start drilling at 09:35. POORLY GRADED SAND WITH SILT (SP-SM), brown, dry to moist, fine to medium grained, micaceous. Headspace reading 0.5 ppm on 0VA, between sleeves.	DEPTH BELC SURFACE (F	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6"	OR CONSISTENCY, SOIL STR	MBOL, COLOR, IVE DENSITY UCTURE,	DRILLING FLUID LOSS
10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	_				·	5 y		Start crilling at 09:35.
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10.0 1-MC 1.4 15-24-24 POORLY GRADED SAND WITH SILT (SP-SM), brown, dry to moist, medium dense, fine to medium grained, micaceous. 10.0 20.0 2-MC 0.8 15-16-87 POORLY GRADED SAND (SP), brown, dry, very dense, fine grained, micaceous. 10.0 20.0 15-16-87 POORLY GRADED SAND (SP), brown, dry, very dense, fine grained, micaceous. 10.0 20.0 15-16-87 POORLY GRADED SAND (MH), brown, moist, fine grained sand, micaceous. 10.0 10.0 15-16-87 POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine sleeves.	-	-				(SP-SM), brown, dry to moi	H SILT st, fine to	
POORLY GRADED SAND WITH SILT 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	5.0 — -		•		·		·	
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20.0 2-MC 0.8 15-16-87 ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine grained sleeves. Headspace reading 0.8 ppm on 0VA, between sleeves.	-	12.0	1-MC	1.4	15-24-24	dense, fine to medium grain	ed, micaceous.	
20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. Headspace reading 0.6 on OVA, between sleeves.	-						· · · · · · · · · · · · · · · · · · ·	
2-MC 0.8 15-16-87 POORLY GRADED SAND (SP), brown, dry, very dense, fine grained, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine grained, micaceous. Headspace reading 0.8 ppm on OVA, between sleeves.	.0 —		-				. · · · · -	
2-MC 0.8 I5-16-87 ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine grained, micaceous. Headspace reading 0.8 ppm on OVA, between sleeves.	-		e e					
22.0 2-MC 0.8 15-16-87 Very dense, fine grained, micaceous. ELASTIC SILT WITH SAND (MH), brown, moist, fine grained sand, micaceous. POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine grained, micaceous.	—	20.0				DOODLY CRADED CAND (CD) brown dry	Hondonned ronding 0.9 com on 0VA
moist, fine grained sand, micaceous. 30.0 30.0 3-MC 1.5 20-20-26 (SP-SM), brown, moist, medium dense, fine grained, micaceous. Headspace reading 0.6 on OVA, between the sleeves.		22.0	2-MC	0.8	15-16-87	very dense, fine grained, m	caceous.	between sleeves.
moist, fine grained sand, micaceous. 30.0 30.0 3-MC 1.5 20-20-26 (SP-SM), brown, moist, medium dense, fine grained, micaceous. Headspace reading 0.6 on OVA, between the sleeves.	-							
POORLY GRADED SAND WITH SILT Sleeves. 1.5 20-20-26 (SP-SM), brown, moist, medium dense, fine grained, micaceous.	5.0 — -					ELASTIC SILT WITH SAND moist, fine grained sand, min	(MH), brown, caceous.	
POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine grained, micaceous. Headspace reading 0.6 on OVA, between sleeves.	-						. · ·	
3-MC 1.5 20-20-26 (SP-SM), brown, moist, medium dense, fine grained, micaceous.	.0	30.0		·	· .	BOODLY OBADED OAND HIT		Headenes vanding 0.0 to 0VA to 1
		32.0	3-MC	1.5	20-20-26	(SP-SM), brown, moist, med	ium dense, fine	
4	-							



PROJECT NUMBER BORING NUMBER LA070022.S0.10 187A-1

PROJEC	CT NAV	Y CLEA	N RCRA		SSMENT LOCATION MCA	
ELEVA		 			DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA
) EQUIF	MENT HSA, 3-1	/4" ID, 6-1/2" OD, GUS PECH BRAT-22 	2 LOGGER K. HUĆKRIEDE
	LEVELS			CTANDADD	· · · · · · · · · · · · · · · · · · ·	
şĒ.		SAMPLE	I	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
					4.1	
-			-	-		
-					4	-
-		. :				-
40.0 —	40.0				ELASTIC SILT WITH SAND (MH), brown,	Headspace reading 5.0 ppm on OVA, —
-		4-MC	0.6	87	moist, hard, fine grained sand, micaceous.	between sleeves.
-	42.0		-			<u>-</u>
-					-	
-				-		
45.0 —		:		-		<u>-</u>
-						-
-						
-						
	50.0				· .	
50.0	30.0			22 01 24	LEAN CLAY WITH SAND (CL), brown, moist, hard, fine to medium grained sand.	Headspace reading 0.3 ppm on OVA.
-	52.0	5-MC	1.5	33-21-34	Hald, file to medium granted sails.	
-	52.0					
				-		-
55.0 —			-	,	·	
-						- -
_						
60.0 —	60.0	·			ELACTIC CULT HITTH CAND (MU) have	
		6-MC	1.0	44-32	ELASTIC SILT WITH SAND (MH), brown, moist, hard, fine grained sand, micaceous.	
	62.0					
					Total Depth at 62.0 Feet.	
-						<u>-</u>
65.0 —						
-					-	
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 PROJECT NUMBER
 BORING NUMBER

 LA070022.S0.10
 188A-1
 SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACIL	TY ASSESSMENT LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	

	DRILLI	NG MET	HOD AN	D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
		LEVELS				START 11/10/92 FINISH 11/10/9	92 LOGGER K. HUCKRIEDE
	x ₽		SAMPLE		STANDARD		COMMENTS
	DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	. –				·		
	<u>-</u>			-			
	5.0 —					POORLY GRADED SAND (SP), brown, dry, fine to medium grains, micaceous.	- -
)	10.0 —	10.0		-	20 05 50	<u>WELL GRADED SAND</u> (SW), tan, moist to wet, dense.	Headspace reading 10.0 ppm on HNu, 5.0 ppm on OVA between sleeves.
	-	12.0	1-MC	1.2	30-25-50		ppill off ova between sieeves.
	- 						
	15.0 —						
	-						
	20.0 —	20.0		-		CILTY CAND (CM) because and	-
	-	22.0	2-MC	1.0	34-40-35	SILTY SAND (SM), brownish gray, moist, dense, fine to medium grains, micaceous.	Headspace reading 50.0 ppm on OVA, between sleeves.
	25.0 — -						
	-					<u>ELASTIC SILT WITH SAND</u> (MH), brown, moist, fine to medium grained sand.	
,	30.0 —	30.0				ELASTIC SILT WITH SAND (MH), brown,	Headspace reading 4.0 on OVA, between
'	_	32.0	3-MC	1.3	30-78-36	moist, hard, fine to medium grained sand.	sleeves.
	-						



PROJECT NUMBER	BORING NUMBER					
LA070022.S0.10	188A-1	SHEET	2	OF	2	

PROJEC	T NAV	Y CLEA!	N RCRA	FACILITY ASSE	SSMENT LOCATION MCA	S-EL TORO
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA
			D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
	LEVELS				START 11/10/92 FINISH 11/10/9	2 LOGGER K. HUCKRIEDE
z₽		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
E.C		ے ا	· }_	TEST	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
H B	INTERVAL	BER	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
DEPTH BELOW SURFACE (FT)	INTE	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTROMENTATION
				·		,
				,		
	40.0					
40.0 —				18-28-67	WELL GRADED SAND (SW), tan, dry to moist, very dense, grains are subangular	Headspace reading 140 ppm on OVA, between sleeves.
	42.0	4-MC	1,1	10 20 01	shaped.	
. 7						
			:			
45.0 —						
50.0 —	50.0					
50.0 —		5-MC	1.2	27-18-27	SILTY SAND (SM), brown, moist, medium dense, fine grained, micaceous.	Headspace reading 0.5 ppm on OVA, between sleeves.
	52.0	3-MC	1.2			
_					<u> </u>	
55.0						
55.0 —						
١.						
					,	
l _				, 		
60.0 —	60.0				Similar to 6-MC, light brown, dry to moist.	Headspace reading 10.0 ppm on OVA,
-		6-MC	1.4	12-18-26	Similar to 6-MC, light brown, dry to moist.	between sleeves.
_	62.0		, ,			
-					Total Depth at 62.0 Feet.	
-				,	<u> </u>	-
65.0 —						
					i e e	_
-		1				
_						



PROJECT NUMBER	BORING NUMBER					
LA070022.RV	193B-1	SHEET	1	OF	1	

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE		
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
DRILLI	NG METI	HOD AN	DEGUIP	MENT HOLLOW	STEM AUGERS - FAILING F-10	DUADDECTY
WATER	LEVELS	NOT E	NCOUN		START 11-6-92 FINISH 11-6-9	
ĭ.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6' -6' -6' -6'	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Surface material consists of 6" thick concrete.
				,		- Controller.
-						
				•		
					·	
5.0 —				·	,	
-	6.5				CLAVEY CAND. (CC), deal, because Total	OVA = 2 ppm _
-	8.0	1-MC	1.4	3-17-20	<u>CLAYEY SAND.</u> (SC), dark brown, moist, — medium dense, fine grained sand.	HNu = 0 ppm
-						
-	10.0					· · · · · · · · · · · · · · · · · · ·
10.0 —	.0.0	2-MC	1,3	9-16-22	CLAYEY SAND, (SC), brown, moist, medium	OVA = 0 ppm HNu = 0 ppm -
_	11.5	2 140			dense, well graded sand.	
-						· .
-	,					
	15.0					· -
15.0 —	·	3-MC	1.2	6-8-12-17	<u>CLAYEY SAND</u> , (SC), brown, moist, medium dense, fine to medium grained sand.	OVA = 0 ppm HNu = 0 ppm
-	17.0					
-				:	-	
-					· -	-
20.0 —	20.0			10 03 07	SANDY LEAN CLAY, (CL), grayish brown,	OVA = 0 ppm
-	21.5	4-MC	1.3	16-23-27	moist, hard, fine grained sand, distinct layering.	HNu = 0 ppm
-					-	• • • • • • • • • • • • • • • • • • •
-						
-	25.0				-	
25.0 —	26.5	5~MC	1.3	12-17-24	SANDY LEAN CLAY, (CL), brown, moist, very stiff, fine to coarse grained sand.	OVA = 0 ppm HNu = 0 ppm -
-					END OF BORING AT 26.5 FEET	-
-		ļ			-	
-					-	-
30.0 —						
-					-	·
	1		:		-	-
_					· -	-
-					-	-



PROJECT NUMBER	BORING NUMBER				•
LA070022.RV	196B-1	SHEET	1	OF 1	

PROJE	CT NAV	Y CLEA	N RCRA	FACILITY ASS	ESSMENT LOCATION MCA	S-EL TORO
ELEVA		·			DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUII	PMENT HOLLOW		
WATER	LEVEL				START 11-4-92 FINISH 11-4-9	LOGGER J.FRIZENSCHAF
₹Ē.		SAMPLE	: 	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-			LC.			Surface material consists of 6" thick concrete over SILTY SAND (SM), dark brown, dense, homogeneous to 5 feet of depth.
-	}				4	
-					-	· ·
5.0 —	5.0				37.7 (44.) 4 . A	·
-	6.5	1-MC	1.5	3-6-18	SILT. (ML), dark brown, moist, very stiff, homogeneous, with micaceous particles present, slight plasticity.	OVA = 0 ppm HNu = 0 ppm
-	ĺ					
-	1			<u>;</u>		· -
-					+	-
10.0 —	10.0			5-10-20	10.0' to 10.5':	OVA = 0 DDm
-	11.5	2-MC	1.5	3-10-20	SILT. (ML), dark brown, dry, stiff to very stiff, homogeneous, with white streaks.	HNu = 0 ppm
	15.0				10.5' to 11.0': WELL GRADED SAND WITH SILI, (SW-SM), light brown, dry, medium dense, homogeneous. 11.0' to 11.5': POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, medium dense,	• • • • • • • • • • • • • • • • • • •
15.0 —	17.0	3-MC	2.0	13-13-15-17	homogeneous. SILT, (ML), light to dark brown, moist, very stiff, homogeneous, with white streaks and	OVA = 0 ppm HNu = 0 ppm
-					platy 1" long greenish particles, fairly plastic.	
-	20.0				4	
20.0 —	20.0	4-MC	1.5	9-15-25	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, dry, medium dense, homogeneous.	OVA = 0 ppm HNu = 0 ppm
-				·	· · · · · · · · · · · · · · · · · · ·	
						1
	25.0	,			-	
25.0 — -	26.5	5-MC	1.5	40-40-80+	WELL GRADED SAND WITH GRAYEL, (SW), light brown to light gray, dry, very dense,	OVA = 0 ppm HNu = 0 ppm
-					homogeneous. END OF BORING AT 26.5 FEET	
-					4	
					1	
30.0 —						
-						



PROJECT NUMBER	BORING NUMBER					
LA070022.RV	199B-1	SHEET	1	OF	1	•

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO
ELEVATION DRILLING CONT	RACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS	

DRILLI	NG MET	HOD AN	D EQUI	PMENT HOLLOW		
WATER	LEVEL	S			START 10-21-92 FINISH 10-2	1-92 LOGGER H.UNDERWOOD
≆F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						Surface material consists of approximately 0.3' thickness of asphalt pavement.
			-			
5.0 —	5.0				27 TV 04412 (04) 4	OVA = 2 ppm
-	7.0	1-MC	1.8	7-7-8-15	SILTY SAND, (SM), brown, dry to moist, medium dense, fine to medium grained sand, micaceous crystals, 15%-20% silt.	HNu = 0 ppm
-						
0.0 —	10.0				Cirilan In 4 MO managin a com all	
-	11.5	2-MC	1.5	7-11-22	Similar to 1-MC. except >20% silt.	HNu = 0 ppm
-				·		
-	15.0					
6.0 — -	17.0	3-MC	1,2	11-25-27-28	SILT. (ML), brown, moist, hard, clayey, <5% fine grained sand, light brown stringers.	OVA = 0 ppm HNu = 0 ppm
-	17.0			<u>.</u> .		
_	20.0					
20.0 — -	21.5	4-MC	1.1	12-28-28	SILT WITH SAND, (ML), brown, moist, hard, fine grained sand.	OVA = 0 ppm HNu = 8 ppm
-						
5.0 —	25.0				 -	
-	27.0	5a-MC	0.3	13-25-39-50		Cobble in shoe of split spoon.
-	29.0	5b-MC	1.6	33-50-70+	SILT. (ML), brown, moist, hard, <5% fine grained sand.	OVA = 0 ppm HNu = 6.5 ppm
- 0.0	50.0				END OF BORING AT 29.0 FEET	
					· · · · · · · · · · · · · · · · · · ·	
-					• • • • • • • • • • • • • • • • • • •	
					· · · · · · · · · · · · · · · · · · ·	



PROJECT NUMBER	BORING NUMBER				•	
LA070022.RV	202B-1	SHEET	1	0F	1	

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMEN	T LOCATION MCAS-EL TORO
	DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
HOLLOW STEM A	

DRILLING METHOD AND EQUIPMENT HULLOW STEM AUGERS LOGGER H.UNDERWOOD START 10-22-92 FINISH 10-22-92 **WATER LEVELS** STANDARD PENETRATION TEST RESULTS SOIL DESCRIPTION COMMENTS SAMPLE ջ RECOVERY (FT) DEPTH BEL SURFACE SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, INTERVAL (FT) TYPE AND NUMBER DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
TESTS AND INSTRUMENTATION 6" -6" -6" -6" **MINERALOGY** Surface material consists of approximately 0.3' thickness of asphaltic pavement. 5.0 5.0 OVA = Oppm \underline{SILT} , (ML), brown to grayish brown, dry to moist, hard, clayey, <5% fine grained sand, HNu = 0 ppm 13-21-21-35 1-MC 1.2 micaceous crystals. 7.0 10.0 10.0 OVA = 0 ppmSILT WITH SAND, (ML), brown, dry to HNu = 9 ppm 10-15-34 2-MC 0.8 moist, hard, fine grained sand, micaceous 11.5 crystals, trace light brown stringers. 15.0 15.0 Similar to 2-MC, except with less sand and OVA = 0 ppm15-21-30 HNu = 0 ppm3-MC more micaceous crystals. 0.7 16.5 20.0 20.0 OVA = OppmPOORLY GRADED SAND WITH SILT, (SP-SM), brown, dry to moist, dense, fine HNu = 18 ppm17-21-25-40 4-MC 2.0 grained sand, micaceous crystals. 22.0 25.0 25.0 OVA = 0 ppmPOORLY GRADED SAND, (SP), light brown, HNu = 0 ppmdry, dense, fine to medium grained sand, with trace micaceous crystals. 19-26-26-30 5-MC 2.0 27.0 END OF BORING AT 27.0 FEET 30.0



BORING NUMBER

205B-1

SHEET 1 OF 1

PROJE	CT NAY	/ Y LLEA	N HUHA	FACILITY ASS	•		ON MCAS-		_
ELEVA					DRILLING CONTRACTOR BEY	LIK DR	ILLING INC	C, LA HABRA, CAL	IFORNIA
			D EQUI	PMENT HOLLOW					
WATER	LEVEL	s			START 10-15-92	FINISH	10-15-92	LOGGEI	H.UNDERWOOD
₹F		SAMPLE		STANDARD	SOIL DESCRIPTION			C0	MMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, MOISTURE CONTENT, RELATIVE DE OR CONSISTENCY, SOIL STRUCTUR MINERALOGY	NSITY	1 [DEPTH OF CASIN DRILLING FLUID TESTS AND INST	G, DRILLING RATE LOSS RUMENTATION
_						r .	4		consists of SILT WITH brown, dry to moist,
] -	1	1	·				1		
5.0 —	5.0						1	•	
3.0	6.5	1-MC	1.5	13-30-42	SILT WITH SAND, (ML), brown and brown, dry, hard, fine grained san organics, light brown substance in microfractures, trace micaceous o	d, trace	, -	OVA = 2 ppm HNu = 0 ppm	
-					friable.	, , 5 (`		
-	10.0						1		
10.0 —	12.0	2-MC	1.7	25-28-38-40	SILT WITH SAND, (ML), brown, dry moist, hard, clayey, trace micaced crystals, friable, light brown subst	us	4	OVA = 0 ppm HNu = 0 ppm	-
-				·	microfractures.	•			
15.0 —	15.0		<u> </u>		STETY SAND (SM) brown dry me	dium		OVA = Oppm	· .
-	16.5	3-MC	1.5	6-15-30	SILTY SAND. (SM), brown, dry, me dense, fine grained sand, approximates, fine grained sand, approximates, for constance of constance found microfractures.	itals,		HNu = 5 ppm	
-							4		
20.0 —	20.0	4-MC	1.9	20-25-26-48	SILT WITH SAND, (ML), brown, moi clayey, trace micaceous crystals brown substance in microfractures	and ligh	i	OVA = 0 ppm HNu = 5 ppm	-
-					similar to 2-MC.		1		
-	25.0					• .	1	•	
25.0 -	26.5	5-MC	1.5	7-27-28	POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, dense, fine medium grained sand, with micaced	to		OVA = 0 ppm -INu = 4 ppm	
-					Crystals. END OF BORING AT 26.5 FEET		/		
30.0 —							.		
-							. 🚽		
							- 1		



PROJECT NUMBER BORING NUMBER LA070022.RV

208B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILIT	YASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HAB	RA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT H	OLLOW STEM AUGERS		

ATER	LEVELS	<u> </u>			START 10-14-92 FINISH 10-14	-92 LOGGER H.UNDERWOOD
≆Ĥ		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6' -6' -6' -6'	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-		-			-	Surface material consists of approximately 0.4' thickness of asphalt pavement.
5.0	5.0	1-MC	1.5	5-5-11	SILTY SAND, (SM), brown, moist, medium dense, fine to medium grained sand, trace	OVA = 0 ppm HNu = 360 ppm
-	6.5				micaceous crystals.	
0.0	12.0	2-MC	0.8	6-7-16-50+	Similar to 2-MC, except dense.	OVA = 0 ppm HNu = 700 ppm
- 5.0 —	15.0		.*		-	
3.0 _ _	16.5	3-MC	1.5	15-31-50+	POORLY GRADED SAND WITH GRAVEL, (SP), brown and light brown, dry to moist, very dense, fine grained sand, fine gravel, no micaceous crystals, <5% silt.	OVA = 0 ppm HNu = 320 ppm
0.0	20.0				Similar to 3-MC, except dense.	OVA = Oppm
-	22.0	4-MC	1.9	15-31-35-40	-	HNu = 160 ppm
5.0 —	25.0				POORLY GRADED SAND WITH SILT.	OVA = Oppm
-	26.5	5-MC	1.5	19-22-31	(SP-SM), light brown, dry to moist, dense, fine to coarse grained sand, no micaceous crystals.	HNu = 320 ppm
).0 —						
-						



PROJECT	NUMBE	F
LA07002	2.RV	

BORING NUMBER

211B-1

SHEET 1 OF 1

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE	ESSMENT LOCATION MC/	AS-EL TORO
ELEVA"					DRILLING CONTRACTOR BEYLIK DRILLING	
DRILLI	NG MET	HOD AN	D EQUI	PMENT HOLLOW	STEM AUGERS	
WATER	LEVELS			· · · · · · · · · · · · · · · · · · ·	START 10-12-92 FINISH 10-12-	
¥E.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	٦	T 모		TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE
FA(INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	N. F.	Ϋ́	<u> </u>		MINEMALOUT	
-					<u>-</u>	Surface material consists of fine grained silty sand, brown, slightly moist, with
-			·			organic material (grass, etc.).
_			· .		·	<u>-</u>
_				·		-
5.0 —	5.0			4-5-15	SILTY SAND, (SM), brown, moist, medium	OVA = 9 ppm
-	6.5	1-MC	1.5	4-5-15	dense, fine grained sand, approximately - 5% gravel, micaceous crystals.	HNu = 18 ppm
-					-	
-	1				-	1
-	10.0				· · · · · · · · · · · · · · · · · · ·	
10.0 —	10.0			6-15-20-25	POORLY GRADED SAND WITH SILT. (SP-SM), light brown to brown, moist,	OVA = 40 ppm HNu = 0 ppm
1 7	12.0	2-MC	2.0	0 13 20 23	medium dense, fine grained sand, micaceous crystals, no gravel.]
					imeaceous crystais, no graver.	
					_	·
15.0 —	15.0				POORLY GRADED SAND WITH CLAY.	OVA ≈ 4 ppm —
_		3-MC	2.0	10-16-21-30	(SP-SC), brown, moist, dense, fine grained sand, micaceous crystals, more clay	HNu = 2 ppm
_	17.0				grading downwards (~10% clay).	-
-					-	-
_		ŀ			-	
20.0 —	20.0				<u>CLAYEY SAND</u> , (SC), brown, moist, dense,	OVA = 6 ppm -
-		4-MC	2.0	13-20-31-41	fine grained sand, light brown cementing - substance in microfractures, <5% gravel.	HNu = 2 ppm
-	22.0	<u></u>				· · · · · · · · · · · · · · · · · · ·
-			ļ	·	· · · · · · · · · · · · · · · · · · ·	
-	25.0				-	
25.0 —	23.0			10 00 03 30	POORLY GRADED SAND WITH SILT AND	OVA = 1 ppm HNu = 5 ppm
-	27.0	5-MC		18-20-23-30	GRAVEL, (SP-SM), brown, dense, fine to medium grained sand, small to medium	
-	1,10				gravel, trace micaceous crystals. END OF BORING AT 27.0 FEET	
					_	
30.0 —						
		1.				
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					<u>-</u>	
1	l		1			1



BORING NUMBER

214B-1

SHEET 1 OF 1

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS									
			D EQUIP	MENT HOLLOW	STEM AUGERS	LUMPEDWOOD				
WATER	LEVELS				START 10-12-92 FINISH 10-12					
æF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
_			·			Surface material consists of approximately 0.4' thickness of asphaltic- pavement.				
						- -				
5.0 —	7.0	1~MC	1.5	5-9-10-19	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, medium dense, fine to medium grained sand, micaceous crystals.	OVA = 100 ppm HNu = 0 ppm				
		·			CI ystais.					
10.0 —	10.0	2-MC	1,5	8-16-30	Similar to 1-MC, except dense, fine grained sand.	OVA = >1000 ppm HNu = 0 ppm				
-	11.5				Juliu.					
-										
15.0 —	15.0	3-MC	2.0	8-23-34-40	Similar to 2-MC.	OVA = >1000 ppm HNu = 0 ppm				
-	17.0									
20.0 —	20.0	-			Similar to 3-MC, except fine to coarse	OVA = >1000 ppm				
-	22.0	4-MC	2.0	15-15-28-31	grained sand.	HNu = 0 ppm				
-		,								
25.0 —	25.0 26.5	5-MC	1.5	11-16-22	<u>SILTY SAND</u> , (SM), light brown to brown, moist, medium dense, fine grained sand.	OVA = >1000 ppm HNu = 0 ppm				
30.0 —	23.0				END OF BORING AT 26.5 FEET	-				
-										



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ROJECT NUMBER		BORING NUMBER
A070022 RV		220B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO		
ELEVATION	DRIL	LING CONTRACTOR	BEYLIK DRILLING INC, LA H	IABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT				
DITELLIO HE HOD AND Education				LEDIZENSCHAE

ATER	LEVELS	<u> </u>			START 10-29-92 FINISH 10-29-92 LOGGER J.FRIZEN			
≖£		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
_						Surface material consists of 1-2" thick asphalt layer over fine grained silty sand.		
أ `	5.0							
i.0 —	6.5	1-MC	1.5	9-10-21	5.0' to 6.0': SILTY SAND. (SM), light brown, dry, medium dense, homogeneous.	OVA = 0.4 ppm HNu = 0 ppm		
4					6.0' to 6.5': SILT. (ML), light to dark brown, moist, very stiff, homogeneous, with mica.			
).o —	10.0							
	11.5	2-MC	1.5	10-19-30	SILT. (ML), light to dark brown, moist, very stiff to hard, homogeneous.	OVA = 0.3 ppm HNu = 0 ppm		
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_	15.0							
— Q.i	17.0	3-MC	1.5	10-20-25-30	15.0' to 16.0': SILTY SAND, (SM), light brown, moist, medium dense, fine grained sand, homogeneous.	OVA = 2.4 ppm HNu = 0 ppm		
. 1				·	16.0' to 17.0': <u>SILT</u> , (ML), dark brown, moist, hard, homogeneous, fairly plastic.			
).o —	20.0				<u>LEAN CLAY</u> , (CL), dark brown, moist, hard,	OVA = 0 ppm		
-	22.0	4-MC	1.5	18-30-33-40	homogeneous with micaceous minerals.	HNu = 0 ppm		
5.0 —	25.0							
-	26.5	5-MC	1.5	25-33-48	<u>LEAN CLAY.</u> (CL), dark brown, moist, hard, homogeneous, with micaceous minerals	OVA = 0 ppm HNu = 0 ppm		
					END OF BORING AT 26.5 FEET			
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D.O —								
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1					est.			



BORING NUMBER

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SHEET 1 OF 2

					SOIL BOIL	1110 200				
PROJE	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVA	TION _				DRILLING CONTRACTOR BEYLIK DRILLING	, INC., LA HABRA, CALIFORNIA				
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10										
	LEVELS			/92 LOGGER A. GIMURTU						
	,	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)		1	1	PENETRATION TEST RESULTS	3012 B230111 13011					
ᇤ	V AL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE				
F A	INTERVAL	7 3c 1	00(6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
	Z	ΣĐ	EF (F)	(N)	MINERALUGI					
						Start drilling at 15:30.				
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5.0 —	1					-				
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_										
10.0 —	10.0									
10.0				23-30-40-60	SANDY SILT (ML), brown, moist, hard, 35% fine grained sand with distinctive remnant	Sample headspace 0 ppm with HNu at 12.0 feet.				
-	12.0	1-MC	1.6	25 30 40 00	soil structure.					
-	12.0									
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-	}									
15.0 —	-					-				
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200	20.0									
20.0 —				20-20-25-35	20-20.5' Similar to 1-MC. 20.5-21' <u>WELL GRADED SAND</u> (SW).	Sample headspace 0 ppm with HNu at 22.0 feet.				
-	22.0	2-MC	1.6	20 20 20 30	21-22' Similar to 1-MC.					
-										
-	ł					· · · · · · · · · · · · · · · · · · ·				
-	-				· -					
25.0 —	-					· -				
-						· · · · · · · · · · · · · · · · · · ·				
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_	<u> </u>									
30.0	30.0									
30.0 —				24-38-42-70	SANDY SILT (ML), brown, moist, hard, fine sand, distinctive remnant soil structure.	Sample headspace 0 ppm with HNu at 32.0 feet.				
-	32.0	3-MC	2.0	24-38-42-70						
-	52.0				· · · · · · · · · · · · · · · · · · ·	•				
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PROJECT NUMBER	BORING NUMBER					
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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVAT	TION _			UCA 2	DRILLING CONTRACTOR BEYLIK DRILLING	S, INC., LA HABRA, CALIFORNIA	
) EQUIP	MENT HOA, 3-1	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 START 10/28/92 FINISH 10/29	9/92 LOGGER A. GIMURTU	
	LEVELS	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)				PENETRATION- TEST RESULTS		John Living Comment	
ᇤ	VAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS	MUISTURE CUNTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS	
PTH	INTERVAL	PE /	200	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	TESTS AND INSTRUMENTATION	
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		1				<u> </u>	
40.0	40.0				CTLTV CAND (SM) gray to white moist	Sample headspace 0 ppm with HNu at	
"		4-MC	2.0	33-48-45-70	<u>SILTY SAND</u> (SM), gray to white, moist, very dense, fine grained.	42.0 feet.	
	42.0]	
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45.0						_	
45.0							
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	50.0				·_	1	
50.0 —	-	- 40		27-64-67	Similar to 4-MC.	Sample headspace 0 ppm with OVA at 50.0 feet.	
-	52.0	5-MC	2.0	-100/4"		1	
-	4.					<u> </u>	
-						1	
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55.0 —	•				-	1	
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-	60.0					-	
60.0 —	80.0		 		Similar to 5-MC, except gravel layer from 60.5 to 61.5 feet.	Sample headspace 0 ppm with OVA at 60.0 feet.	
-	22.0	6-MC	1.6	60-120-100/3"	60.5 to 01.5 feet.	-	
-	62.0	 	 		Total Depth at 62.0 Feet.		
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85.0 —	-				-	 	
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BORING NUMBER

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SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTO	BEYLIK DRILLING, INC., LA HAB	RA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH	BRAT-22	
	10 (02 (02	10 (02 (00	V HUNNDIEDE

20.0 20.0 20.0 20.0 2-MC 1.7 15-8-14-21 25.0 25.0 30.0 30.0	WATER	LEVELS	š			START 10/23/92 FINISH 10/23/	92 LOGGER K. HUCKRIEDE
SILTY SAND (SM), dark brown, moist, fine Color changed to light brown. 10.0	≆ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SILTY SAND (SM), dark brown, moist, fine Color changed to light brown. SILTY SAND (SM), brown, moist, dense, line to medium grained. Headspace reading on 0YA similar to background between sleeves. SANDY LEAN CLAY (CL), dark brown, moist, very stiff, line grained. Headspace reading similar on 0VA to background, between sleeves. SANDY LEAN CLAY (CL), dark brown, moist, very stiff, line grained. Headspace reading similar on 0VA to background, between sleeves. POREY GRADED SAND (SP), veltow brown, dry, dense, fine to medium grains. Similar to 3-MC.	DEPTH BELO SURFACE (F	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS
to medium grained. Color changed to light brown. SILTY SAND (SM), brown, moist, dense, fine to medium grained. Headspace reading on OVA similar to background between sleeves. SANDY LEAN CLAY (CL), dark brown, moist, very stiff, fine grained. SANDY LEAN CLAY (CL), dark brown, moist, very stiff, fine grained. Headspace reading similar on OVA to background, between sleeves. Headspace reading similar on OVA to background, between sleeves. Headspace reading on OVA similar to background between sleeves. Headspace reading on OVA similar to background between sleeves. Headspace reading on OVA similar to background between sleeves. Similar to 3-MC.	-						Start drilling at 08:30.
Color changed to light brown. 10.0 10.0 1.6 20-17-20-39	- -					SILTY SAND (SM), dark brown, moist, fine to medium grained.	
Color changed to light brown. 10.0	-					-	
10.0 10.0 10.0 1.6 20-17-20-39 SILTY SAND (SM), brown, moist, dense, fine to medium grained. Headspace reading on OVA similar to background between sleeves. 15.0 20.0 20.0 2-MC 1.7 15-8-14-21 SANDY (EAN CLAY (CL), dark brown, moist, very stiff, fine grained. Headspace reading similar on OVA to background, between sleeves. 15.0 20.0 2-MC 1.7 15-8-14-21 SANDY (EAN CLAY (CL), dark brown, moist, dense, fine to medium grained. Headspace reading on OVA similar to 3-MC (SP), yellow brown, dry, dense, fine to medium grains, subrounded particles. Similar to 3-MC. Headspace reading 0.4 ppm on OVA, between sleeves.	5.0 —			:		Color changed to light brown.	
20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	-						
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20.0 20.0 20.0 2-MC 1.7 15-8-14-21 22.0 25.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.	· -	12.0					
20.0 20.0 2-MC 1.7 15-8-14-21 22.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.							
25.0 2-MC 1.7 15-8-14-21 25.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 30.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.0 40.	15.0 -	1					
22.0 2-MC 1.7 15-8-14-21 SANDY LEAN CLAY (CL), dark brown, moist, very stiff, fine grained. 25.0 - 30.0 30.0 SANDY LEAN CLAY (CL), dark brown, moist, very stiff, fine grained. Headspace reading similar on OVA to background, between sleeves. Headspace reading 0.4 ppm on OVA, dry, dense, fine to medium grains, subrounded particles. Similar to 3-MC.	-			s - e			
22.0 2-MC 1.7 15-8-14-21 SANDY LEAN CLAY (CL), dark brown, moist, very stiff, fine grained. 25.0 - 30.0 30.0 SANDY LEAN CLAY (CL), dark brown, moist, very stiff, fine grained. Headspace reading similar on OVA to background, between sleeves. Headspace reading 0.4 ppm on OVA, dry, dense, fine to medium grains, subrounded particles. Similar to 3-MC.	-	20.0					
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30.0 3-MC 1.5 39-31-36-35 POORLY GRADED SAND (SP), yellow brown, dry, dense, fine to medium grains, subrounded particles. Similar to 3-MC. Headspace reading 0.4 ppm on OVA, between sleeves. Similar to 3-MC.	25.0 —	-	.*				
POORLY GRADED SAND (SP), yellow brown, dry, dense, fine to medium grains, subrounded particles. Similar to 3-MC. Headspace reading 0.4 ppm on OVA, between sleeves. Similar to 3-MC.	-				,		
30.0 3-MC 1.5 39-31-36-35 POORLY GRADED SAND (SP), yellow brown, dry, dense, fine to medium grains, subrounded particles. Similar to 3-MC. Headspace reading 0.4 ppm on OVA, between sleeves. Similar to 3-MC.	-	1					
Similar to 3-MC.	30.0 —		3-MC	1.5	39-31-36-35	dry, dense, fine to medium grains,	Headspace reading 0.4 ppm on OVA, between sleeves.
34.0			3A-MC	1.6	20-23-23-39	Similar to 3-MC.	



PROJECT NUMBER

LA070022.S0.10

BORING NUMBER

223A-1

SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVA					DRILLING CONTRACTOR BEYLIK DRIL	LING, INC., LA HABRA, CALIFORNIA		
DRILLI	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22							
WATER	LEVELS			· · · · · · · · · · · · · · · · · · ·	START 10/23/92 FINISH			
SE.		SAMPLE	· ·	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
_	-					· · · · · · · · · · · · · · · · · · ·		
						_		
_								
-			,			-		
40.0 —	40.0				<u>SILTY SAND</u> (SM), light brown, dry to	Headspace reading 0.6 ppm on OVA.		
-		4-MC	1.5	30-37-20-50	moist, dense, fine grained.	-		
-	42.0					-		
-						-		
-								
45.0 —		:						
.] -						-		
_								
-						- 1		
-	50.0					·		
50.0 —		5-MC	1.7	21-48-59-110	SANDY SILT (ML), light brown, dry to moist, hard, fine to medium grained sand, rounded sand particles.	Headspace on OVA similar to background.		
-	52.0					-		
-						-		
] -		:				1		
55.0 —								
	-							
						1		
	·				<u>LEAN CLAY WITH SAND</u> (CL), brown, moist, fine grain size, medium plasticity.			
60.0 —	60.0				CANDY CHIT (MI) Walls			
		6-MC		35-44 - 54-73	SANDY SILT (ML), light brown, dry to moist, hard, fine to medium sand, round	Headspace on OVA similar to background.		
_	62.0				sand particles.			
	-				Total Depth at 62.0 Feet.	-		
· -						-		
85.0 —						-		
-						-		
-			-			-		
-						-		
-					:	-		



BORING NUMBER 224A-1

SHEET 1 OF 2

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE						
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
					1/4" ID, 8" OD, FAILING F-10	D 114DDF071				
WATER	•			TERED	START 10/28/92 FINISH 10/28/					
종년		SAMPLE		STANDARD PENETRATION- TEST RESULTS	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	۷AL	AND R	ERY	RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE				
PTH	INTERVAL TYPE AND NUMBER (S) - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 -		6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION					
200	Z.	FZ	<u> </u>	(11)						
-						Start drilling at 11:25.				
-			•			· -				
-										
-										
5.0										
					4	<u>.</u>				
_	1									
10.0 -	10.0				SANDY LEAN CLAY (CL), grayish brown,	HNu=0 ppm				
	12.0	1-MC	1.4	6-11-12-14	moist, stiff to very stiff, fine to coarse sand.	OVA=0 ppm				
-	12.0									
-			-			·				
15.0 —										
10.0										
_					4					
, -			•		-					
-					+	·				
20.0 —	20.0		-	0.0 11 17	LEAN CLAY (CL), grayish brown, moist, very stiff, trace to little fine to medium	HNu=0 ppm OVA=0 ppm				
-	22.0	2-MC	0.8	6-9-11-17	sand.					
-		04 46	10	11-12-17-17	Similar to 2-MC.	HNu=0 ppm OVA=0 ppm				
-	24.0	2A-MC	1.0	,						
25.0 —	:				<u> </u>	_				
-					u de la companya de la companya de la companya de la companya de la companya de la companya de la companya de					
-					· · · · · · · · · · · · · · · · · · ·					
-					-	-				
-	30.0									
30.0 —	30.0	_		14-17-18-20	SANDY LEAN CLAY (CL), grayish brown, moist, very stiff, fine to coarse sand.	HNu≖O ppm OVA=O ppm				
-	32.0	3-MC	1.9	14-11-10-20	•					
		3A-MC	1.5	12-18-20-20	32-33' <u>LEAN CLAY WITH SAND</u> (CL), grayish brown, moist, very stiff, fine to	HNu=0 ppm OVA=0 ppm				
-	34.0	JA ML	15		medium sand. 33-34' <u>LEAN CLAY</u> (CL), grayish brown,					
35.0 —				-	moist, very stiff, fine to medium sand.					



BORING NUMBER

2244-1

SHEET 2 OF 2

PROJEC	OT NAV	Y CLEA	N RCRA	FACILITY ASSE		AS-EL TORO
ELEVA			·	-	DRILLING CONTRACTOR BEYLIK DRILLING	3, INC., LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUIP	MENT HSA, 4-	1/4" ID, 8" OD, FAILING F-10	2/02 - D HARDESTV
			ENCOUN	1	START 10/28/92 FINISH 10/28	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SOL	INI	FN FN	P.E.	(N)	MINERALUGI	
						- - -
40.0 - -	42.0	4-MC	1.4	14-17-27-42	40-40.5' <u>LEAN CLAY</u> (CL), grayish brown, moist, very stiff, fine to medium sand. 40.5-42' <u>POORLY GRADED SAND WITH</u> <u>CLAY</u> (SP-SC), grayish brown, moist,	HNu=0 ppm OVA=0.4 ppm
					dense, fine to medium grained.	
45.0 - 						-
_	50.0					
50.0 -	52.0	.5-MC	1.75	20-20-28-35	LEAN CLAY WITH SAND (CL), grayish brown, moist, hard, fine to coarse sand.	HNu=0 ppm OVA=0.4 ppm
55.0 -						
-		Name of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last o				
60.0	60.0				LEAN CLAY (CL), grayish brown, moist,	- - - - - - -
	62.0	6-MC	1.5	10-10-26-34	hard, trace silt, trace fine sand. Total Depth at 62.0 Feet.	OVA=2.0 ppm
65.0					-	
-						
70.0						
_		!			j	_



PROJECT NUMBER BORING NUMBER LA070022.S0.10 225A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION.	MCAS-EL TOR	80	
ELEVATION	DRILLING CONT	TRACTOR BEYLIK DRILL	ING, INC., LA	HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, GUS	PECH BRAT-22		<u>-</u>	
	10 /10 /0	10	1/10/00	V UNCKRIEDE	

	NG MET		7 FAINII	MENI 1108, 5	/4" ID, 6-1/2" OD, GUS PECH BRAT-22 	92 LOGGER K. HUCKRIEDE
		SAMPLE		STANDARD		COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND . NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_					· -	Start drilling at 09:15.
-						
5.0 —					ELASTIC SILT WITH SAND (MH), brown, moist.	
-					- 	
10.0	10.0				POORLY GRADED SAND (SP), light brown,	Headspace reading 2 ppm on OVA.
-		1-MC	1.5	30-10-17-37	dry, dense, fine grained.	neadspace reading 2 ppill on ova.
_	12.0	1A-MC	1.4	33-16-40-53	SILT WITH SAND (ML), brown, moist, hard, fine to medium sand.	
15.0 — -			·			
- -	20.0					
20.0 — - -	20.0	2-MC	1.5	30-36-41-111	POORLY GRADED SAND WITH SILT (SP-SM), brown, very dense, fine to medium grains, occasional nodules of gray clay.	Headspace reading 1 ppm on OVA.
-						
25.0 — - -			٠.		·	
	30.0				- -	
30.0 — - -	32.0	3-MC	1.5	41-43-34-40	POORLY GRADED SAND (SP), brown, moist, dense, fine grains, occasional thin layers of gray clay.	Headspace reading 0.5 ppm on OVA.
<u>-</u>						



ROJECT NUMBER	BORING NUMBER		
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PRO IEC	T NAV	Y CLEAT	N RCRA	FACILITY ASSE	ESSMENT	CATION MCA	S-EL TORO		
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22									
WATER LEVELS START 10/19/92 FINISH 10/19/92 LOGGER K. HUCKRIEDE									
⊋Ê		SAMPLE		STANDARD	SOIL DESCRIPTION		COMMENTS		
DEPTH BELOW SURFACE (FT)		0	<u>></u>	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, CO	OLOR			
A CE	RVA	ANE	VER		MOISTURE CONTENT, RELATIVE DEN OR CONSISTENCY, SOIL STRUCTURE	ISITY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS		
LEP L	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MINERALOGY	•	TESTS AND INSTRUMENTATION		
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-							<u>.</u>		
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-						-	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s		
40.0 —	40.0				POORLY GRADED SAND (SP), brown	ı, moist,	Headspace reading 0.2 ppm on OVA.		
		4-MC	1.6	34-32-39-47	very dense, fine grains, trace silt.				
_	42.0					-	· .		
-						-	<u>-</u>		
_						-			
45.0 —	-			·		• -	-		
						4	-		
-									
_	·					-			
						4			
50.0 —	50.0				POORLY GRADED SAND WITH SILT		Headspace reading 1.5 ppm on OVA.		
-		5-MC	1.5	47-91-90-101	(SP-SM), brown, moist, very dense, coarse grains.	fine to			
_	52.0			·	g, a	4			
						4	· · · · · · · · · · · · · · · · · · ·		
_						. 4	· · · · · · · · · · · · · · · · · · ·		
55.0 —									
_						4	·		
_									
-									
						_			
80.0	60.0				POORLY GRADED SAND (SP), brown	dry to	Headspace reading on OVA similar to		
_		6-MC		32-60-106-120		tz _	background.		
	62.0								
_					Total Depth at 62.0 Feet.		·		
e5.0 —									
00.0									
] -						.]			
]			
						1			



BORING NUMBER

226A-1

SHEET 1 OF 2

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE		AS-EL TORO	
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
DRILLI	NG MET	HOD AN	D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	<u> </u>	
WATER	LEVELS	3			START 10/19/92 FINISH 10/20	/92 LOGGER A. GIMURTU	
₃Ê		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
					WELL GRADED GRAVEL (GW), brown, dry, gravel up to 10 cm diameter in silt matrix to a depth of 2.5 feet, fill.	Start drilling at 16:30.	
_					- - 		
5.0 —					SANDY SILT (ML), dark brown, moist, fine to medium sand with some clay, fill.		
-							
-	10.0		1.			<u> </u>	
10.0 —	12.0	1-MC	1.4	6-11-12-30	<u>SANDY SILT</u> (ML), brown, moist, very stiff, fine sand, distinctive remnant soil structure.	Sample headspace reading 0 ppm with OVA in plastic bagged soil sample from 10.0 to 12.0 feet.	
-	12.0						
15.0 —						_	
_) 	
20.0 —	20.0	1			Similar to 1-MC.	Sample headspace reading 0 ppm with	
_	22.0	2-MC	1.4	6-8-10-17		OVA in plastic bagged sample from 20.0 feet.	
25.0 —					, , , , , , , , , , , , , , , , , , ,		
20.0 -					- -		
-							
30.0 —	30.0	3-MC	1.7	9-13-20-23	SANDY SILT (ML), brown, moist, very stiff, fine sand, clay present, distinctive remnant soil structure present, micaceous.	Sample headspace reading 6.0 ppm with OVA and 0 ppm with HNu in plastic bag of soil from 30.0 to 32.0 feet.	
-							



PROJECT	NUMBE
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BORING NUMBER

226A-1

SHEET 2 OF 2

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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
			D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	<u> </u>	
WATER LEVELSSTART 10/19/92 FINISH 10/20/92 LOGGER A. GIMURTU							
₹Ē.	<u> </u>	SAMPLE	:	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
<u> </u>	=	HZ.	<u> </u>				
-							
40.0 —	40.0	l					
40.0	42.0	4-MC	2.0	16-30-40 -84/5"	WELL GRADED SAND (SW), light brown to gray, moist, dense, particle size up to 2.0 cm, grades coarser with depth.	Sample headspace reading 1.0 ppm with — OVA in plastic bag of soil from 40.0 feet.	
-	72.0						
_							
45.0 —				2	: · · · · · · · · · · · · · · · · · · ·	en en en en en en en en en en en en en e	
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-	ĺ .				<u> </u>		
-	50.0				+	,	
50.0 —	50.0	5-MC	2.0	19-60-70-35	Similar to 4-MC, very dense.	Sample headspace reading 1 ppm with OVA in plastic bag of soil from 50.0 feet.	
1	52.0			24 45 50 55	Similar to 5-MC.		
<u> </u>	54.0	5A-MC	2.0	24-45-52-55	1		
	01.0				1	en grande de la companya de la companya de la companya de la companya de la companya de la companya de la comp	
55.0 —							
-					1		
					· · · · · · · · · · · · · · · · · · ·	Rock or other obstruction encountered	
					· ·	at approximately 57.0 feet, continues to 60.0 feet.	
	60.0				+	Auger refusal at 60.0'.	
60.0	00.0				Total Depth at 60.0 feet.		
					-	· ·	
					+ :		
				. [4	·	
	,]				+	· · · · · · · · · · · · · · · · · · ·	
85.0 —					-		
-					·	·	
-					4	•	
-					+	· <u>-</u>	



BORING NUMBER

227A-1

SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10								
WATER LEVELS					START 10/06/92 FINISH 10/06	/92 LOGGER A. GIMURTU		
≆ F		SAMPLE	· - · · · · · · · · · · · · · · · · · ·	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6° -6° -6° (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
						Start drilling at 11:00.		
5.0 —	,				SILTY SAND (SM), light brown, dry to moist, fine grained.			
		.*	·		en en en en en en en en en en en en en e	-		
10.0 —						- -		
_	13.0	1-MC	2.0	32-35-36-40	POORLY GRADED SAND (SP), light brown, dry to moist, dense, fine grained.	Sample attempted at 10 feet. Refusal of spoon, although augering not difficult. Auger advanced to 11 feet to attempt 2nd sample.		
15.0 —		-				Sample headspace 0 ppm on OVA at 12.0 - feet.		
-				,	· · · · · · · · · · · · · · · · · · ·	-		
-					- - -			
20.0 —	21.0					_		
_	23.0		0	20-21-75-75		Sampler attempted at 20.0 feet, after refusal, auger was advanced to 22.0 feet for 2nd attempt.		
-	20.0				·	Difficult augering at 23.0 to 24.0 feet.		
25.0	25.0				POORLY GRADED SAND (SP), reddish	· ·		
. 4	27.0	2-MC	1.4	30-60-55-65	brown, dry to moist, very dense, fine to medium grained.	Sample headspace 0 ppm on OVA at 25.5 feet.		
_								
30.0 —	30.0	3-MC	1.3	36-43-60-75	POORLY GRADED SAND (SP), reddish brown, moist, very dense.	Sample headspace 0 ppm on OVA at 31.0 feet.		
-	32.0	:						



PROJECT NUMBER	BORING NUMBER					
LA070022.S0.10	227A-1	SHEET	2	OF	2	

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
DRILLI	NG MET	HOD AN	D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10		
WATER LEVELS					START 10/06/92 FINISH 10/06	/92 LOGGER A. GIMURTU	
ÆF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
						Extremely difficult augering at 35.0 feet.	
_	,				- - -	leet.	
40.0 —	40.0				CANDY CT. T. (Att.) have a search hand fine	Futuranaly difficult account for 25.0 Ac-	
-	42.0	4-MC	1.7	40-45-30-45	SANDY SILT (ML), brown, moist, hard, fine sand, trace clay, distinctive remnant soil structure.	Extremely difficult augering from 35.0 to 57.0 feet. Sample headspace 0 ppm on 0VA at 41.0 feet.	
_					· · · · · · · · · · · · · · · · · · ·		
45.0						_	
-							
50.0	50.0				Similar to 4-MC.	Sample headspace 0 ppm on 0VA at 51.0	
-	52.0	5-MC	1.1	32-21-50-50	_	feet.	
-							
55.0 —	57.0					- -	
-	59.0	6-MC	2.0	86-81-106-50	Similar to 5-MC.	Sample headspace 0 ppm on 0VAat 58.0 feet.	
-					Total Depth at 59.0 Feet.		
60.0 —							
-							
85.0 —			1.			-	
-						•	
						,	



30.0

32.0

3-MC

1.5

40-76-78-80

30.0

PROJECT NUMBER LA070022.S0.10 BORING NUMBER

229A-1

SHEET 1 OF 2

SOIL BORING LOG

	,		<u>.</u>	· · · · · · · · · · · · · · · · · · ·							
PROJE	CT NAV			FACILITY ASSE							
	TION _				DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA						
			D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, MOBILE B-61	100					
WATER	LEVEL				START 10/22/92 FINISH 10/22/	/92 LOGGER J. FRIZENSCHAF					
₹ E		SAMPLE	7	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS					
	AŁ	₽~	₽	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE					
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION					
					Surface material consists of 2" thick asphaltic pavement with light brown silty — sand underneath.	Start drilling at 08:50.					
	1										
•	1				-						
	1]									
5.0 —	1										
•	1										
					- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1						
-	†] .			· · · · · · · · · · · · · · · · · · ·						
-					+						
10.0 —	12.0	1-MC	1.9	32-55-55-60	CLAYEY SILT (ML/CL), light brown, moist, hard, homogeneous, occasional light to dark gray veins.	HNu=5 ppm OVA=0 ppm					
-	12.0				 						
•					· · · · · · · · · · · · · · · · · · ·	•					
					4						
15.0 -					· —						
•											
					4						
20.0 —	20.0				CLAYEY SILT (ML/CL), light brown, dry to	HNu=0 ppm					
-	22.0	2-MC	1.5	45-55-100	moist, hard, trace 3 mm subangular quartz particles, occasional dark gray reduction veins and chalky white concretions.	OVA=3 ppm					
-	<u>'</u>										
, -											
2 E C					1						
25.0 —											
-											
· -					Change in soil at 27' to <u>SANDY SILT</u> (ML), very light yellowish-brown, dry, homogeneous.						

30-31' <u>SANDY SILT</u> (ML), light brown, dry, hard, homogeneous with gray reduction veins, trace mica.
31-32' <u>CLAYEY SILT</u> (ML/CL), light to dark brown, moist, hard, homogeneous.

HNu=1 ppm OVA=0 ppm



PROJECT NUMBER BORING NUMBER LA070022.S0.10

229A-1

SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
	TION _				DRILLING CONTRACTOR BEYLIK DRILLING.	INC., LA HABRA, CALIFORNIA		
DRILLI	NG MET	HOD AN	D EQUIF		1/4" ID, 6-1/2" OD, MOBILE B-61			
WATER	LEVELS	3			START 10/22/92 FINISH 10/22/	92 LOGGER J. FRIZENSCHAF		
≆F.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	 	9	μY	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE		
FAC	INTERVAL	E AP BER	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
SUB	NI L	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTROMENTATION		
_				-				
-								
-					1			
	40.0							
40.0 —	10.0			56-64-79	CLAYEY SILT (ML/CL) dark brown, dry, hard, homogeneous.	HNu=1 ppm OVA=1.5 ppm		
-	42.0	4-MC	2.0	30-04-79	_			
-				26-50-71-84	42-43' Similar to 4-MC, red iron and gray reduction zones.	HNu=1 ppm OVA=1 ppm		
-	44.0	4A-MC	1.9	20-50-71-04	7			
-	,				43-43.5' <u>SILTY SAND</u> (SM), light brown to light gray, dry, homogeneous with occasional micaceous and 0.2 mm rounded			
45.0	•				quartz particles.	. 7		
-					43.5-44' Similar to 4-MC.			
-					· ·			
-					1			
-	50.0				_ · · ·	• · · · · · · · · · · · · · · · · · · ·		
50.0 —	30.0				50-51.5' <u>SILT WITH CLAY</u> (MH), light brown, dry, hard, homogeneous with some	HNu=1 ppm OVA=1 ppm		
-	52.0	5-MC	2.0	10-45-57-75	micaceous particles.	0 V A - 1 DDIII		
-	52.0	,			51.5-52' SILTY SAND (SM), light brown,			
-					dry, very dense, fine grained, homogeneous with 1 cm large white			
-					concretions.			
55.0				-				
-			,		-	-		
-				·				
-					-	•		
-					· · · · · · · · · · · · · · · · · · ·			
80.0 -	60.0				SANDY SILT (ML), light brown, dry, hard,	HNu=0 ppm		
-		6-MC	1.9	20-64-81-75	homogeneous.	OVA=O ppm		
-	62.0				Total Depth at 62.0 Feet.			
-					33.0	-		
-					-	, , , , , , ,		
85.0 —				'	+			
-								
-					· · · · · · · · · · · · · · · · · · ·	-		
-						, , , , , , , , , , , , , , , , , , ,		
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PROJECT	NUMBER
LA07002	2.RV

BORING NUMBER

231B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMEN	۱ <u>۲</u>	LOCATION MCAS-EL TORO	:
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABR	A, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS		,
	10 00 00	10 00 00	

ATER	LEVELS	3		·	START 10-22-92 FINISH 10-22-	LOGGER H.UNDERWOOD
≆F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_					-	Surface material consists of approximately 0.3' thickness of asphalting pavement.
-	5.0				-	
5.0 —	7.0	1-MC	1.7	10-10-15-25	SILTY SAND. (SM), brown, dry to moist, medium dense, fine grained sand, light brown stringers.	OVA = 0 ppm HNu = 0 ppm
-)	
0.0	10.0	2-MC	1.2	9-15-23	SILTY SAND, (SM), brown, moist, medium dense, fine grained sand, trace micaceous crystals, approximately 15%-20% silt.	OVA = 0 ppm HNu = 0 ppm
5.0	15.0 17.0	3-MC	2.0	10-20-25-31	Similar to 2-MC, except dense, fine to medium grained sand.	OVA = 0 ppm HNu = 0 ppm
+						
- 0.0	20.0	4-MC	1.3	12-19-30	LEAN CLAY/FAT CLAY, (CL/CH), grayish brown, dry, hard, <5% sand.	OVA = 0 ppm HNu = 0 ppm
-)
i.o -	25.0 26.5 27.0	5a-MC	NR	17-25-31		Rig hammer broke.
4	29.0	5b-MC	1.7	17-27-50-50+	SILTY SAND. (SM), light brown to brown, dry to moist, very dense, fine grained sand, trace micaceous crystals.	OVA = 0.2 ppm HNu = 1 ppm
.0 –	,	·			END OF BORING AT 29.0 FEET	
-				·		



PROJECT NUMBER	BORING NUMBER
LAOZOO22 PV	2320-1

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SHEET 1 OF 1

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSI		ICAS-EL TORO
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLIN	NG INC, LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUII	PMENT HOLLOW	STEM AUGERS	
WATER	LEVELS	3	•		START 10-23-92 FINISH 10-	23-92 LOGGER J.FRIZENSCHAF
≆ F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	H	ş	≿	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
FAC	ERVAL)	TYPE AND NUMBER	RECOVERY (FT)		OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SEE	INTE (FT)	F S	95.E	6" -6" -6" -6"	MINERALOGY	TESTS AND INSTRUMENTATION
						Surface material consists of 1-2" thick asphalt layer over fine grained silty
-						sand.
		:				
-	5.0		<u> </u>			
5.0 —		1-MC	2.0	4-6-7-21	SANDY SILT, (ML), light brown, dry, very stiff, contains subangular to elongated	OVA = 0.5 ppm - HNu = 200 ppm
] -	7.0				white, concretions and quartz particles.	_
			•			_
_						-
10.0 —	10.0		ļ	<u></u>		
-	11.5	2-MC	1.4	11-12-26	10.0' to 11.0': SANDY SILT. (ML), light brown, dry, stiff	OVA = 0 ppm HNu = 0 ppm
-					to very stiff, contains subangular white concretions and quartz particles. 11.0' to 11.5':	
-					SILT. (ML), light brown, dry, hard, with white concretions.	. -
-						-
15.0	15.0			20-30-40	15.0' to 16.0':	OVA = 4 ppm
-	16.5	3-MC	1.5	20-30-40	<u>SANDY SILT</u> , (ML), light brown, dry, hard, with white concretions.	HNu = 0 ppm
-	1	ŀ			16.0' to 16.5': <u>SILT</u> . (ML), light to darker brown, dry,	-
-	-				hard, clayey, homogeneous with white concretions.	.
-						-
20.0 —	20.0				SILT, (ML), light brown, dry, hard,	OVA = 0 ppm -
-	20.0	4-MC	1.8	20-21-40-42	homogeneous, with approximately 1 cm diameter quartz paricles, fairly plastic.	HNu = 0 ppm -
-	22.0			·		-
						-
-	25.0		-			-
25.0 —	25.0				25.0' to 26.0':	OVA = 0 ppm
-	27.0	5-MC	1.5	22-31-40-37	SILT. (ML), light brown with light gray mica and light gray cone in the center down to about 25.5°, dry, hard*.	_ HNu = 3 ppm _
	27.0				\ 26.0° to 27.0°.	
-			-		WELL GRADED SAND, (SW), light brown to light gray, dry, dense to very dense, with	[7]
-	1				approximately 1mm diameter quartz gravel. END OF BORING AT 27.0 FEET	-
30.0 —						_
						1
-						
				,		-



BORING NUMBER

233B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO
	ONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS	

ATER	LEVELS	NOT E	NCOUN	TERED	START 11-3-92 FINISH 11-3	LOGGER B.HARDESTY
₽ F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-	·					Surface material consists of 6" thick concrete.
			•	·		
0 -	6.0				0014-701	-
-	7.5	1-MC	1.5	5-7-10	6.0' to 7.0': <u>CLAYEY SAND</u> , (SC), dark brown, moist, medium dense to loose, fine to medium grained sand, grading with depth to: 7.0' to 7.5':	OVA = 0 ppm HNu = 0 ppm
.0 –	10.0				<u>LEAN CLAY WITH SAND</u> , (CL), brown, moist, stiff, fine grained sand.	OVA = 2 DDM
-	11.5	2-MC	1.3	8-7-13	<u>LEAN CLAY WITH SAND</u> , (CL), similar to 1-MC from 7.0' to 7.5'.	- HNu = 0 ppm
						-
0 -	15.0 16.5	3-MC	1.5	9-9-14	Similar to 2-MC, except dark brown to gray brown.	OVA = 0 ppm HNu = 0 ppm
-				-		
- - 0.	20.0					OVA = 0 ppm
2	21.5	4-MC	1.5	9-14-20	<u>POORLY GRADED SAND</u> , (SP), tan, moist, medium dense, fine to medium grained sand, trace clay.	HNu = 0 ppm
				,		
.0 –	25.0 26.5	5-MC	1.5	12-18-19	Similar to 4-MC except with <u>SANDY LEAN</u> <u>CLAY</u> , (CL), brown, moist, in tip.	OVA = 0 ppm - HNu = 0 ppm
1					END OF BORING AT 26.5 FEET	-
·o —						-
1	-					4
,						



PROJECT NUMBER	BORING NUMBER					
LA070022.S0.10	234A-1	SHEET	1	OF	2	

PROJECT NAVY CLEAN RCRA FACILITY ASS	ESSMENTL	OCATION MCAS-EL TOR	0
ELEVATION	DRILLING CONTRACTOR BEY	LIK DRILLING, INC., LA F	ABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 3-	-1/4" ID, 6-1/2" OD, GUS PECH BRAT-	22	
	10/10/00	10/10/00	K HINGKOTEDE

DRILLI	NG MET	HOD AN	D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
	LEVEL				START 10/16/92 FINISH 10/16/	/92 LOGGER K. HUCKRIEDE
₹F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					SANDY LEAN CLAY (CL), dark brown, moist, fine sand, decreasing sand with depth.	Start drilling at 09:30.
5.0 —						
-						
10.0 —	10.0	1-MC	1.3	10-20-22-47	LEAN CLAY WITH SAND (CL), dark brown, moist, hard, fine sand.	Headspace 0.5 ppm on 0VA, 0 ppm on THNu.
-	12.0	1-MC	1.3	33 00 71		
15.0 —						•
	20.0					
20.0 —	22.0	2-MC	1.7	12-18-20-45	SILTY SAND (SM), brown, moist, dense, fine grained.	Headspace 1.0 ppm on OVA, 0 ppm on HNu.
25.0 —			·			-
30.0 -	30.0	3-MC	1.7	40-43-50-86	<u>WELL GRADED SAND</u> (SW), gray, dry to moist, very dense.	Headspace reading similar to background on OVA and HNu.



PROJECT NUMBER

LA070022.S0.10

BORING NUMBER

234A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RURA FACILITY ASSESSMENT LOCATION MUAS-EL TORO								
					DRILLING CONTRACTOR BEYLIK DRILL	ING, INC., LA HABRA, CALIFORNIA		
DRILLI	NG MET	HOD AN	D EQUII		1/4" ID, 6-1/2" OD, GUS PECH BRAT-22			
WATER	LEVELS					0/16/92 LOGGER K. HUCKRIEDE		
₹F	<u></u>	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
					Layer 1' to several feet thick of <u>SILT</u> (ML), brown, moist.			
_					(ML), Drown, moist.			
40.0 —	40.0				WELL GRADED SAND WITH GRAVEL (SW),	Headanasa raadina similar ta		
-	42.0	4-MC	1.3	42-95-67-81	gray, dry, very dense.	Headspace reading similar to background on OVA and HNu.		
-								
45.0 —	1		}			200 ppm in borehole on OVA, 0 ppm in		
-						borehole on HNu.		
-						-		
-				:		.1		
-	50.0					1		
50.0 —		5-MC	1.5	33-76-77-70	WELL GRADED SAND WITH GRAVEL (SW), gray, dry, very dense, fine gravel.	Headspace reading similar to background on OVA and HNu.		
-	52.0	5A~MC	1.4	130-87-63-136	Similar to 5-MC.			
-	54.0							
55.0 —						-		
-								
-								
60.0 —	60.0	6-MC	1.6	34-68-85-63	<u>POORLY GRADED SAND</u> (SP), gray, dry, very dense, fine to medium grained.	Headspace similar to background on OVA and HNu.		
-	62.0				Total Depth at 62.0 Feet.			
_								
65.0								
-						-		



BORING NUMBER

241A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSE	ESSMENT	LOCATION MCAS-EL TO	ORO
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA	A HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA. 3-			
WATER LEVELS	START 10/30/92	FINISH 10/30/92	LOGGER K. HUCKRIEDE

ATER	LEVELS				START 10/30/92 FINISH 10/30/	
≆F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	RVAL	AND	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
SUR	INTERVAL	TYPE AND NUMBER	RECO (FT)	6" -6" -6" (N)	MINERALOGY	TESTS AND INSTRUMENTATION
-						Start drilling at 10:55.
	•				CLAYEY SAND (SC), fine grained.	
_					- Control (control of chief	
0 -					-	
-						
1	e e					
.o –	10.0			40, 40, 00, 00	POORLY GRADED SAND WITH CLAY (SP-SC), brown, moist, very dense, fine	Headspace reading similar to background on OVA and HNu.
-	12.0	1-MC	1.6	40-42-62-30	grained.	buckyloulid on OYA and Hitu.
0 -		·				
-						
-						
.0 –				·		
-	22.0				WELL GRADED SAND WITH GRAVEL (SW),	Headspace reading similar to
_	24.0	2~MC	1.7	13-11-55-60	gray, dry to moist, very dense.	background on OVA and HNu.
o –		2A-MC	2.0	33-98-35-57	POORLY GRADED SAND (SP), light brown, dry to moist, very dense, trace fines.	
	26.0					
7						
.0 –	30.0		· ·			
-	32.0	3-MC	2.0	35-37-38-6	POORLY GRADED SAND (SP), light brown, moist, medium dense, fine to medium grains.	Headspace reading similar to background on OVA and HNu.
1	J2,U	3A-MC	2.0	50-42-52-55	CLAYEY SAND (SC), brown, moist, very dense, fine grained.	
	34.0					



ROJECT NUMBER	B
A 0.7 0 0 2 2 C 10	1 2

BORING NUMBER

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
) EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	A/AA K HICKDIEDE		
WATER	LEVELS				START 10/30/92 FINISH 10/30			
s(F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
_						_		
_				, .				
40.0	40.0	•			<u>FAT CLAY</u> (CH), brown, moist, hard.	Headspace reading on OVA and HNu		
	42.0	4-MC	2.0	59-92-85-93		similar to background.		
-						-		
45.0 —	:				- -			
- -								
-	50.0					**************************************		
50.0 —		5-MC	2.0	30-40-50-50	<u>FAT CLAY WITH SAND</u> (CH), brown, moist, hard, fine to medium sand.	Headspace reading on OVA and HNu similar to background.		
-	52.0							
-	,		-					
55.0 —			2					
_						-		
80.0 —	60.0				WELL GRADED SAND (SW), gray, very	Headspace reading at 3.0 ppm on OVA.		
-	62.0	6-MC	1.9	30-44-75-102	dense.	-		
_	·				Total Depth at 62.0 Feet.			
85.0 —						-		
-								
-		·						



PROJEC	TN	NUME	3ER
LA0700	22,	R۷	

15.0' to 16.0':

10-50-66-75

25-33-40

23-54-60

BORING NUMBER

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SHEET 1 OF 1

SOIL BORING LOG

OVA = 2 ppm HNu = 0 ppm

OVA = 3 ppmHNu = 0 ppm

OVA = 0 ppm HNu = 0 ppm

	TION _			FACILITY ASS	SSMENT LOCATION MEDICATION	
		HOD AN	D EQUI	PMENT HOLLOW		
	LEVELS				START 11-12-92 FINISH 11-12	2-92 LOGGER J.FRIZENSCHAF
LON (FT)		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELO SURFACE (F	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Surface material consists of fine grains sand with silt and gravel of light brown color.
<u>-</u>		,				
5.0 —	5.0					_
-	6.5	1-MC	1.0	24-32-64	POORLY GRADED SAND WITH SILT AND GRAVEL. (SP-SM), light brown, dry, very dense, cemented, coarse gravel, with white	OVA = 0 ppm HNu = 0 ppm
					streaks.	
- 10.0 —	10.0				en en en en en en en en en en en en en e	
_	11.5	2-MC	1.3	23-56-80	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM), light brown and light gray (mixed), moist, very dense, homogeneous.	OVA = 1.2 ppm HNu = 0 ppm

ISJO 10:00.5 Similar to 2-MC. 16.0 to 17.0: WELL GRADED SAND WITH GRAVEL, (SW),

light gray, dry, very dense, homogeneous.

<u>WELL GRADED SAND WITH GRAVEL</u>, (SW), light gray, dry, dense, homogeneous with red rust staining.

POORLY GRADED SAND WITH SILT AND GRAVEL. (SP-SM), light brown, slightly moist, very dense, homogeneous.

END OF BORING AT 26.5 FEET



25.0

30.0

15.0

21.5

25.0

26.5

3-MC

4-MC

5-MC

2.0

1.5

1.5



PROJECT	NUMBER
LA07002	2.RV

BORING NUMBER

249B-1

SHEET 1 OF 1

					1					
PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO										
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA									
	DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS									
	LEVELS				START 11-12-92 FINIS	H 11-12-92	LOGGER J.FRIZENSCHAF			
∡ F		SAMPLE		STANDARD	SOIL DESCRIPTION		COMMENTS			
013 (F)	يـ	ū	Æ	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR	R,	DEPTH OF CASING, DRILLING RATE			
ACE	RVA	E AN	OVE		MOISTURE CONTENT, RELATIVE DENSIT OR CONSISTENCY, SOIL STRUCTURE,	Y	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	MINERALOGY		TESTS AND INSTRUMENTATION			
						1				
-							· · · · · · · · · · · · · · · · · · ·			
						1				
	5.0					1	en en en en en en en en en en en en en e			
5.0 —		1-MC	1.5	40-47-70	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM), light brown, moist, ve	erv –	OVA = 2 ppm HNu = 0 ppm			
	6.5				dense, with rusty stains.		11144 - 0 ppin			
			·			1				
						1	·			
] 1	10.0					1	_			
10.0 —		2-MC	1.5	18-50-63	POORLY GRADED SAND WITH SILT. (SP-SM), light brown with light gray sta	aine	OVA = 3 ppm HNu = 0 ppm			
-	11.5				moist, very dense, homogeneous.]	77746 - O pp.			
-]				
]				
	15.0									
15.0 —		3-MC	1.5	24-30-52+	15.0' to 16.0': Similar to 2-MC.		OVA = 2 ppm HNu = 0 ppm			
	16.5				16.0' to 16.5': WELL GRADED SAND. (SW), light gray, (drv.				
					very dense, homogeneous.					
] -].									
	20.0		<u> </u>			.]	<u> </u>			
20.0 —		4-MC	1.5	17-22-34	20.0' to 21.0': WELL GRADED SAND WITH GRAVEL, (SI	w).	OVA = 4 ppm HNu = 0 ppm			
	21.5				light gray,dry, very dense, homogeneou Bottom 6":	is.	•			
	}				POORLY GRADED SAND WITH GRAVEL, (SP), light brown, moist, dense,]				
					homogeneous.					
25.0 —	25.0									
25.0		5-MC	1.5	7-15-32-36	POORLY GRADED SAND, (SP).		OVA = - ppm HNu = 0 ppm			
	27.0	3 %	1.5							
					END OF BORING AT 27.0 FEET	1				
					V.					
200										
30.0 —										
			1]				
1 -	1	I		1		7	•			



ROJECT NUMBER	BORING NUMBER
A070022.RV	250B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO

ELEVATION _______ DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA

DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS

FINISH 10-26-92 LOGGER J.FRIZENSCHAF START 10-26-92 WATER LEVELS COMMENTS STANDARD PENETRATION TEST SOIL DESCRIPTION SAMPLE SE. SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, DEPTH BEL SURFACE RECOVERY (FT) TYPE AND NUMBER RESULTS DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION 6" -6" -6" -6" MINERALOGY Surface material consists of 2-3" of asphalt over a sandy silt material, dark brown, slightly moist, (fuel odor). 5.0 5.0 SILT, (ML), dark brown, moist, very stiff, OVA = 30 ppmHNu = 10 ppm9-15-25-26 homogeneous, micaceous minerals, fairly 1-MC 2.0 plastic. 7.0 10.0 10.0 SILT. (ML), dark brown, moist, very stiff, OVA = 85 ppm9-9-20 2-MC 1.5 homogeneous, micaceous minerals, fairly HNu = 10 ppm11.5 plastic. 15.0 15.0 SILT, (ML), dark brown, moist, very stiff, OVA = 30 ppmHNu = 0 ppm10-14-17-24 homogeneous, micaceous minerals, 3-MC 2.0 calcerous veins, fairly plastic. 17.0 20.0 20.0 OVA = 20 ppm20.0' to 20.5': SILT. (ML), dark brown, moist, very stiff, 7-10-16 HNu = 0 ppm 4-MC 1.5 21.5 homogeneous with micaceous material and calcerous with micaceous material and calcerous veins. 20.5' to 21.5':

SANDY SILT. (ML), light brown, dry, very stiff, micaceous minerals, with SILTY SAND. (SM), in tip. 25.0 25.0 OVA = 2 ppm 25.0' to 25.5': 8-20-26 1.5 5-MC HNu = 0 ppm SILTY SAND, (SM), light brown, dry, 26.5 homogeneous, fine grained sand. 25.5' to 26.5' POORLY GRADED SAND, (SP), light brown to light gray, dry, dense, homogeneous. END OF BORING AT 26.5 FEET 30.0



PROJECT NUMBER

A070022.S0.10

BORING NUMBER

SHEET 1 OF 2

	***************************************				SOIL BOR	ING LOG		
PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	SSMENT LOCATION MC	AS-EL TORO		
ELEVA"					DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA			
DRILLI	NG MET	HOD AN	D EQUIP	MENT HSA, 3-1	/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10			
WATER	LEVELS	3			START 10/7/92 FINISH 10/7/	92 LOGGER A. GIMURTU		
≖ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION- TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
- - 5.0 —					Surficial material consisting of approximately 3 inches of bituminous pavement, underlain by 2 inches of subgrade rock.	Start drilling at 11:45.		
- - - 10.0 — -	10.0	1-MC	2.0	18-27-38-27	POORLY GRADED SAND (SP), brown, moist, dense, trace silt.	Sample headspace 0 ppm on OVA at 10.5 and 11.0 feet.		
- 15.0 — - -								
20.0 —	20.0	2-MC	1.9	25-80-50-50	SANDY SILT (ML), brown, moist, hard, fine sand, distinctive remnant soil structure.	Difficult augering at 18.0 feet. Sample headspace 0 ppm on GVA at 20.5 and 21.0 feet.		
25.0 — - - - -					- - -			
30.0 — - -	32.0	3-MC	1.7	15-35-31-38	SILTY SAND (SM), brown, moist, dense, fine grained.	Sample headspace 0 ppm on OVA at 30.5 and 31.0 feet.		
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BORING NUMBER

252A-1

SHEET 2 OF 2

PROJEC	T NAV			FACILITY ASSE		CAS-EL TURU
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLIN	G, INC., LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUIP	PMENT HSA, 3-1	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	
WATER	LEVELS	3			START 10/7/92 FINISH 10/7	/92 LOGGER A. GIMURTU
≖F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY. (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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-						1
-						1
-	40.0			-		
40.0 — -		4-MC	1.7	26-40-35-28	Similar to 3-MC, trace to little clay, apparent bedding present.	Sample headspace 0 ppm on OVA at 40.5, 41.0, and 41.5 feet.
-	42.0		10	22-25	Similar to 4-MC, very dense.	4
-	43.0	4A-MC	1.0	22-25		-
-						-
45.0 —						<u> </u>
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						<u>.</u>
_]					
_						
	50.0			.		
50.0 —		- 40	100	21-65-70-38	Similar to 4A-MC, very dense.	Sample headspace 0 ppm on OVA at 50.5 and 51.0 feet.
-	52.0	5-MC	2.0	21-03-70-33		1
_	,	5A-MC	1.0	62-50+	Similar to 5-MC.	1
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-						-
55.0 —						-
-						-
-						- · · · · · · · · · · · · · · · · · · ·
-	1					-
-				1		-
60.0 —	60.0			<u> </u>	Similar to 5-MC, interbedded with 4 inch	Sample headspace 0 ppm on OVA with
-		6-MC	2.0	32-75-50+ -50+	layers of <u>WELL GRADED SAND</u> (SW), light brown.	60.5 and 61.0 feet.
-	62.0	 		-	Total Depth at 62.0 Feet.	
-					Total Depth at 62.5 Feet.	1
-				1.		<u>.</u>
65.0				1	•	<u> </u>
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1		1	1			



BORING NUMBER

255A-1

SHEET 1 OF 2

		-				
PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE		
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
WATER	LEVELS	3			START 10/20/92 FINISH 10/20	/92 LOGGER A. GIMURTU/J. FRIZENS
3F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					Surficial material consisting of approximately 2 inches of bituminous pavement and approximately 2 inches of subgrade gravel.	Start drilling at 14:00.
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5.0 —						
3.0						
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-					J	
10.0 —	10.0				SILTY SAND (SM), light brown, dry, dense,	HNu=0.1 ppm
-		1-MC	2.0	10-14-21-30	homogeneous, some micaceous minerals.	OVA=O ppm
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15.0 —			·			
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_					<u>.</u>	
20.0 —	20.0					
-	22.0	2-MC	2.0	14-39-40-25	SILT (ML), light brown, dry, hard, homogeneous, white streaks from 21 feet.	HNu=1 ppm OVA=3 ppm
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1						
25.0 —					- The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of	_
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-						4
_					4	
1 _						
30.0 —	30.0					
30.0				17-39-75-75	CLAYEY SILT (ML/CL), light brown, moist, hard, homogeneous with white streaks.	HNu=1 ppm OVA=3 ppm
-	32.0	3-MC	2.0	11 29-12-13		
-	32.0				-	·
-						4
-					·. •	



BORING NUMBER

255A-1

SHEET 2 OF 2

PROJEC	T NAV	Y CLEAN	1 RCRA	FACILITY ASS						
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA				
) EQUIP	MENT HSA, 3-	-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	A CIMURTULE EDITEMS				
	LEVELS			1	START 10/20/92 FINISH 10/20					
¥E E		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
						-				
-										
40.0 —	40.0				Similar to 3-MC, local white concretions	- HNu=1 ppm				
-	42.0	4-MC	2.0	30-46-62-70	I and the above	OVA=1 ppm				
_										
45.0 —					-	_				
-										
-	50.0									
50.0 —		5-MC	2.0	11-31-60-70	Similar to 4-MC, with very hard white concretions from 51'.	HNu=0.5 ppm OVA=0.5 ppm				
-	52.0 53.0	5A-MC	1.0	15-61-100+	Similar to 5-MC, with very hard concretions and streaks.	- - -				
55.0 —					_	- -				
-						-				
-	60.0					- -				
60.0 —	62.0	6-MC	1.75	26-88-120+	60-60.5' Similar to 5A-MC, without concretions. 60.5-61' POORLY GRADED SAND WITH SILT (SP-SM), fine grained.	OVA=5 ppm -				
65.0 —	7				61-62' CLAYEY SILT (ML/CL), light brown, moist, hard, homogeneous with hard white concretions and streaks. Total Depth at 62.0 Feet.	-				
-	,					- - - -				
-						-				



PROJECT NUMBER	BORING NUMBER				
1 4070000 50 10	263.4-1	SHEET	1	OF	2

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE		S-EL TORO
ELEVA	TION		., .		DRILLING CONTRACTOR BEYLIK DRILLING,	, INC., LA HABRA, CALIFORNIA
DRILLI	NG METI	HOD AND	EQUIP	MENT HSA, 3-1	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
	LEVELS			· · · · · · · · · · · · · · · · · · ·	START 11/04/92 FINISH 11/04/	92 LOGGER K. HUCKRIEDE
- E	•	SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
BELO!	/AL	O &	ERY	STANDARD PENETRATION- TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						Start drilling at 08:45.
	÷.				POORLY GRADED SAND (SP), brown, dry to moist, fine to medium grained, some gravel.	
_					- Tarangan	<u>-</u>
5.0 —						
-						-
-						
	10.0					<u>-</u>
10.0 —		1-MC	1.0	92-34	POORLY GRADED SAND WITH GRAVEL (SP), fine to medium grained. SANDY CLAY (CL), brown, moist, in tip of sampler.	Headspace reading 1.5 ppm on HNu.
	12.0					
-						
15.0 —						
-						
-	20.0					· · · · · · · · · · · · · · · · · · ·
20.0 —	20.0	2-MC	1.3	21-40-57	CLAYEY SAND (SC), light brown, moist, very dense, fine to medium grains.	Headspace reading 5 ppm on OVA and 1 ppm on HNu, between sleeves.
-	22.0					
_						
25.0 —						<u>.</u>
-					· · · · · · · · · · · · · · · · · · ·	
_						
-						
30.0	30.0	3-MC	1.2	30-64-34	POORLY GRADED SAND WITH CLAY (SP-SC), light brown, moist, very dense, micaceous.	Headspace reading 1.0 ppm on OVA.
-	32.0					
1		l ·	1	1		



BORING NUMBER

263A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVA"					DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA			
DRILLI	NG METI	HOD AN	O EQUIP	MENT HSA, 3-	/4" ID, 6-1/2" OD, GUS PECH BRAT-22				
WATER	LEVELS	<u> </u>			START 11/04/92 FINISH 11/04/	92 LOGGER K. HUCKRIEDE			
≨ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
-					• -	-			
-									
-	40.0	7							
40.0 —	40.0	4-MC	1.3	20-44-41	Similar to 3-MC.	Headspace reading similar to background.			
-	42.0								
-					· -				
45.0 —						-			
-									
-				:					
50.0 —	50.0 52.0	5-MC	1.4	34-62-69	CLAYEY SAND (SC), light brown, moist, very dense, fine to medium grained, interbedded with WELL GRADED SAND (SW).	Headspace reading 4 ppm on OVA.			
_									
55.0 —									
_									
-					<u>-</u>	<u>-</u>			
80.0 —	60.0				POORLY GRADED SAND WITH CLAY	Headspace reading 1.0 ppm on OVA.			
-	62.0	6-MC	`.	32-49-62	(SP-SC), light brown, dry to moist, very dense, micaceous.	· · · · · · · · · · · · · · · · · · ·			
_					Total Depth at 62.0 Feet.				
85.0 —			-	·					
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BORING NUMBER

263A-2

SHEET 1 OF 2

					3312 3311	110 200
PROJE	CT NAV	Y CLEA	N RCRA	FACILITY ASS	ESSMENT LOCATION MCF	AS-EL TORO
ELEVA	TION _				DRILLING CONTRACTOR BEYLIK DRILLING	
DRILLI	NG MET	HOD AN	D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
WATER	LEVEL	s			START 11/04/92 FINISH 11/04/	/92 LOGGER K. HUCKRIEDE
≭ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	<u></u>		≿	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR.	DESTINATE CARRIES BOWN INC. SATE
H.A.	RV.	A A SER	OVE	6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
SUE P	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION
						Start drilling at 14:32.
-	1				-	Start drilling at 14.52,
-	-				_	
-					POORLY GRADED SAND WITH CLAY	*
_					(SP-SC), dark brown, moist.	
5.0 —	}				<u> </u>	_
-	-				-	
ļ	-				-	
-						* .
-					<u>-</u>	
10.0	10.0				LEAN CLAY WITH SAND (CL), dark brown,	Headspace reading 1.5 ppm on OVA,
-		1-MC	1.5	10-15-20	moist, very stiff, fine sand.	between sleeves.
	12.0					
_						
_				·		
15.0 —						
10.0						
-						
· -	20.0				N. Carlotte and Carlotte and Carlotte	
20.0 —				8-10-10	POORLY GRADED SAND WITH CLAY (SP-SC), brown, moist, medium dense, fine	Headspace reading 0.5 ppm on OVA.
-	22.0	2-MC	1.5	0-10-10	to medium grained.	<u>.</u> ,
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25.0 —						-
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-					-	
-						
-					-	·
30.0 —	30.0				WELL GRADED SAND WITH CLAY (SW-SC),	Headspace reading 2.0 ppm on OVA and
-		3-MC	1.5	20-32-40	light brown, moist, dense.	Headspace reading 2.0 ppm on OVA and 0.2 ppm on HNu.
-	32.0				4	
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BORING NUMBER

263A-2

SHEET 2 OF 2

				FACILITY ASSE		S-EL TORO
ELEVA	TION				DRILLING CONTRACTOR BEYLIK DRILLING.	INC., LA HABRA, CALIFORNIA
			EQUII	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	02 LUCKBIEDE
	LEVELS				START 11/04/92 FINISH 11/04/	
DEPTH BELOW SURFACE (FT)		SAMPLE		STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
GEL GEL	INTERVAL TYPE AND NUMBER RECOVERY (FT)		RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE	
PTH	INTERVAL	TYPE AND NUMBER	00 []	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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-			N.,		, · · · · · · · · · · · · · · · · · · ·	
40.0 —	40.0				POORLY GRADED SAND (SP), light brown,	Headspace reading on OVA similar to
-	40.0	4-MC	1.4	30-25-58	moist, very dense, fine to medium grained.	background.
-	42.0					
-						
-				'	-	
45.0 —						
-				·	1	
-	•					
-						
	50.0					
50.0 —		5 40		50-58-66	WELL GRADED SAND (SW), yellow-brown, dry to moist, very dense.	Headspace reading on OVA similar to background.
	52.0	5-MC	1.3			
	-					
55.0 —						
55.0						
_						_
_	٠.					
_						
60.0	60.0				POORLY GRADED SAND WITH CLAY	Headspace reading on OVA similar to
-		6-MC	1.2	37-62-58	(SP-SC), brown, moist, very dense, fine to medium grained.	background.
-	62.0			<u> </u>	Total Depth at 62.0 Feet.	
-			·		- Star Beptil at 52.0 Feet.	
-						-
65.0 —						·
-						· '
-						
-						-



BORING NUMBER

265B-1

SHEET 1 OF 1

PROJEC	CT NAV	Y CLEA	N RCRA	FACILITY ASSI					-EL TORO		
ELEVA				· · · · · · · · · · · · · · · · · · ·		ONTRACTOR .	BEYLIK DR	ILLING I	NC, LA HABRA, CAL	IFORNIA	
DRILLI	NG MET	HOD AN	D EQUII	PMENT HOLLOW		· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·	
WATER	LEVEL	s			START _11-10)-92	FINISH	11-10-92	LOGGEF	J.FRIZENSCHAF	
≅F.	SAMPLE STANDARD PENETRATION				SOIL	DESCRIPTION)N		CO	MMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS MOISTURE CONTEI OR CONSISTENCY, MINERALOGY	NT. RELATIVE	EDENSITY		DEPTH OF CASIN DRILLING FLUID I TESTS AND INST	G, DRILLING RATE LOSS RUMENTATION	
									Surface material silty material.	consists of light bro	WN,
					·		*	1	sity material.		
-								1			
_								1			
-	5.0			·				1			
5.0 —	6.5	1-MC	0.5	7-10-14	POORLY GRADED (SP-SM), light br homogeneous, with	rown, dry, med	dium dense.		OVA = 0 ppm HNu = 0 ppm		_
-			İ		present.		J			,	
-			ļ.	[4			
-					•			4			
10.0 -	10.0				SILT, (ML), light	brown dry b	ard.	· -	OVA = O ppm		_
-	12.0	2-MC	1,5	7-11-21-31	laminated with mid white concretions	caceous minei	rais and		HNu = 0 ppm		
							1.00	.]			
			·					7		,	
]	15.0				·			-]			-
15.0 —	17.0	3-MC	2.0	6-20-28-31	POORLY GRADED GRAVEL, (SP-SM homogeneous.	SAND WITH S I), light brown	SILT AND dry, dense	, –	OVA = 0 ppm HNu = 0 ppm		
								1			-
1 1								1		•	•
-	20.0							1			
20.0 —		4-MC	2.0	8-30-36-43	20.0' to 21.0': Similar to 3-MC. 21.0' to 22.0':			=	OVA = 0 ppm HNu = 0 ppm		-
+	22.0				WELL GRADED SA dense, homogene	ND, (SW), ligh	nt gray, dry	, -			-
								4			-
] -								4			-
25.0	25.0				25.0' to 26.0':			4	OVA = O ppm		_
-	27.0	5-MC	2.0	20-25-34-39	WELL GRADED SA dense, homogene 26.0' to 27.0':	ND, (SW), ligh ous.	nt gray, dry	· <u> </u>	HNu = 0 ppm		•
	٠.				POORLY GRADED (SP-SM), light brohomogeneous.	own, dry, very	dense,	_/}			-
]]					END OF BORING	AT 27.0 FEET		1			-
30.0						•		7			-
	·							1			-
								1			-
								4			-



PROJECT NUMBER	BORING NUMBER	•
LA070022.RV	265B-2	

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	· • • • • • • • • • • • • • • • • • • •
ELEVATION DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS		

WATER	LEVEL	s			START 11-13-92 FINISH 11-13	-92 LOGGER J.FRIZENSCHAF	
æF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	(FT) TYPE AND NUMBER		STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
			RECOVERY (FT)			Surface material consists of light brown sandy material with gravel.	
=						4	
5.0 —	7.0	1-MC	1.0	8-21-28-40	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, dense, cemented, micaceous particles.	OVA = 0 ppm - HNu = 0 ppm	
				·			
10.0 —	10.0						
- -	12.0	2-MC	2.0	25-31-40-55+	10.0' to 11.0': Similar to 1-MC. 11.0' to 12.0': WELL GRADED SAND WITH SILT AND	OVA = 4 ppm - HNu = 0 ppm	
- -					GRAVEL. (SW-SM), light gray, dry, very dense, homogeneous.		
15.0 —	15.0	3-MC	2.0	26-30-37-40	SANDY SILT, (ML), light brown, dry, hard, cemented, with white streaks and concretions.	OVA = 0 ppm - HNu = 0 ppm	
20.0 —	20.0				and the state of the state of the state of the state of the state of the state of the state of the state of the	044 - 05	
-	22.0	4-MC	2.0	24-37-46-58	20.0' to 21.0': SILT, (ML), dark brown, moist, hard, homogeneous, some plasticity. 21.0' to 22.0':	OVA = 0.5 ppm HNu = 0 ppm	
_	24.0	4a-MC	2.0	18-25-28-30	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, very dense, homogeneous with white concretions and micaceous minerals.	OVA = 7 ppm HNu = 0 ppm	
25.0 —	25.0				POORLY GRADED SAND WITH SILT.		
_	27.0	5-MC	1.5	12-28-37-41	(SP-SM), light brown, moist, dense, homogeneous, with white concretions, and micaceous materials.	OVA = 4 ppm HNu = 0 ppm	
					Similar to 4a-MC. END OF BORING AT 27.0 FEET		
30.0 —	,						
1							



PROJECT NUMBER	BORING NUMBER			
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PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTO	BEYLIK DRILLING INC, LA HABRA	, CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGERS	W 44 00	LEDIZENDOUAE

	LEVELS			MENT HOLLOW	START 11-14-92 FINISH 11-14-	-92 LOGGER J.FRIZENSCHAF
SAMPLE STANDARD PENETRATION				STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_						Surface material consists of approximately 4" layer of asphalt over silty fine grained sand.
5.0 —	5.0	1-MC	2.0	3-7-12-29	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM), light brown, moist,	OVA = 8 ppm - HNu = 0 ppm
-	7.0	1 110	2.0	-	medium dense, homogeneous with white concretions.	
10.0 —	10.0	2-MC	1.5	8-16-21-25	Similar to 1-MC.	OVA = 0 ppm HNu = 0 ppm
-	15.0				· · · · · · · · · · · · · · · · · · ·	
15.0 — - -	17.0	3-MC	1.5	15-23-30-40	15.0' to 16.0': WELL GRADED SAND WITH SILT AND GRAVEL. (SW-SM), light gray, dry, dense, homogeneous. 16.0' to 17.0': POORLY GRADED SAND WITH SILT AND	OVA = 12 ppm HNu = - ppm OVA = 4 ppm
20.0	19.0	3a-MC	2.0	18-40-42-46	GRAVEL (SP-SM), light brown, moist, dense, homogeneous with white concretions. POORLY GRADED SAND WITH SILT AND	HNu = 0 ppm
-	22.0	4-MC	2.0	18-21-30-31	GRAVEL. (SP-SM), light brown, moist, very dense, homogeneous, with white concretions, clay content increases in tip. POORLY GRADED SAND WITH SILT AND	OVA = 2 ppm HNu = 0 ppm
- - 25.0 —	25.0				GRAVEL. (SP-SM), light brown, slightly moist, dense, homogeneous with white concretions.	
-	27.0	5-MC	2.0	20-23-27-30	Similar to 4-MC, fine gravel. END OF BORING AT 27.0 FEET	OVA = 0 ppm HNu = 0 ppm
- 30.0 —					• • • • • • • • • • • • • • • • • • •	
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PROJECT NUMBER	BORING NUMBER					
LA070022.RV	265B-4	SHEET	1	OF	1	

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	_
FI EVATION DRILLING CONTRACTO	OR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS		
Differing the files and edge them		

ELEVAT					DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
) EGUI	PMENT HOLLOW		92 LOGGER J.FRIZENSCHAF
WATER				CTANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND WAS NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-			<u> </u>		-	Surface material consists of grass cover over silty fine grained sand with gravel.
	5.0					
5.0	7.0	1-MC	1.0	18-18-28-30	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, dense, cemented, fine grained sand, white concretions and streaks.	OVA = 0.5 ppm HNu = 0 ppm
-					• • • • • • • • • • • • • • • • • • •	
10.0	10.0	2-MC	1.5	12-40-57-60	Similar to 1-MC, except very dense, with gravel.	OVA = 1 ppm HNu = 0 ppm
	12.0		<u> </u>			
15.0	15.0	3-MC	1.5	8-40-43-50	POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM), similar to 2-MC, except coarser grained sand.	OVA = 2 ppm HNu = 0 ppm
-	17.0				• • • • • • • • • • • • • • • • • • •	
20.0	20.0	4-MC	1.0	32-76	20 .0' to 29 5': Similar to 3-MC.	OVA = 1 ppm HNu = 0 ppm
-	23.0	4a-MC	2.0	50-80-97-130	20.5' to 21.0': WELL GRADED SAND WITH SILT AND GRAVEL. (SW-SM), light brown to light gray, dry, very dense, with white concretions.	
25.0	25.0				Similar to 4-MC from 20.5' to 21.0'. Similar to 4a-MC, except light gray and	OVA = 12 ppm
4	27.0	5-MC	2.0	26-43-73-80	without concretions.	HNu = 0 ppm
-					END OF BORING AT 27.0 FEET -	
30.0 -						
<u></u>						



ROJECT NUMBER	BORING NUMBER
Δ070022 RV	265B-5

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION		BEYLIK DRILLING INC, LA HABRA,	CALIFORNIA
DRILLING METHOD AND FOUTPMENT			·

FINISH 11-6-92 LOGGER HEICKRICH START 11-6-92 WATER LEVELS . STANDARD PENETRATION TEST RESULTS COMMENTS SAMPLE SOIL DESCRIPTION ₽E F RECOVERY (FT) DEPTH BEL SURFACE (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, INTERVAL (FT) TYPE AND NUMBER DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION 6" -6" -6" -6" MINERALOGY Headspace analyses taken between sleeves. 5.0 5.0 POORLY GRADED SAND. (SP), brown, moist, medium dense, fine to medium grained sand, with trace silt. OVA = 0.8 ppm15-15-10-18 1-MC 1.7 7.0 10.0 10.0 POORLY GRADED SAND WITH SILT. OVA = 1 ppm10-10-14-15 (SP-SM), brown, moist, medium dense. 2-MC 1.8 12.0 15.0 15.0 POORLY GRADED SAND, (SP), brown, moist, OVA = 0.5 ppm8-8-15-20 medium dense, fine to medium grained 3-MC 1.9 17.0 20.0 20.0 OVA = 0.5 ppmSimilar to 3-MC, except light brown. 12-15-15-17 4-MC 1.8 22.0 25.0 25.0 WELL GRADED SAND, (SW), yellowish OVA = 0.5 ppm20-23-30-48 brown, dry, dense. 5-MC 27.0 END OF BORING AT 27.0 FEET 30.0



PROJECT NUMBER	BORING NUMBER					
LA070022.RV	265B-6	SHEET	1	OF	1	

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA								
ELEVAT				 		BEYLIK DR	ILLING I	NC, LA HABRA, CALIFORNIA	
DRILLI	NG METI	HOD AND) EQUIP	MENT HOLLOW	STEM AUGERS				
WATER	LEVELS	<u></u>			START 11-6-92	FINISH	11-6-92	LOGGER HEICKRICH	
₃Ĥ		SAMPLE		STANDARD	SOIL DESCRIPTION	ON .		COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMB MOISTURE CONTENT, RELATIVI OR CONSISTENCY, SOIL STRUC MINERALOGY	E DENSITY		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
							-	-	
5.0 —	5.0						-	Headspace analyses taken between sleeves.	
5.0	7.0	1-MC	1.8	5-5-5-11	<u>POORLY GRADED SAND.</u> (SP), to moist, loose, fine to medium sand.	brown, dry grained		OVA = 1 ppm	
					1			· -	
10.0 —	10.0	2-MC	2.0	8-8-12-14	Similar to 1-MC, except medium fine sand.	n dense, mo	re -	OVA = 1 ppm	
_	12.0	2 1,0	2.0						
15.0 —	15.0								
	17.0	3-MC	2.0	5-3-4-8	POORLY GRADED SAND WITH (SP-SM), brown, moist, loose, medium grained sand.	fine to	1	OVA = 2.5 ppm -	
_	19.0	3a-MC	2.0	5-12-10-20	<u>SILTY SAND</u> , (SM), brown, mo dense, poorly graded, fine to grained sand.	ist, medium medium		OVA = 1 ppm	
20.0 —	20.0				e e				
-	22.0	4-MC	1.7	10-20-20-30	Similar to 3a-MC with <u>WELL GF</u> (SW), dry to moist in tip.	RADED SAN	<u>P</u> .	OVA = 1 ppm	
_							1	<u> </u>	
25.0 —	25.0						4	<u> </u>	
-	27.0	5-MC	1.5	10-10-10-20	Layered WELL GRADED SAND, POORLY GRADED SAND WITH (SP-SM), light brown,medium of medium grained sand.	SILT.	to	OVA = 1 ppm -	
30.0 —					END OF BORING AT 27.0 FEE	T	1	- - - -	
-							1	- -	
_				,				· -	



PROJECT NUMBER	BORING NUMBER						_
LA070022.RV	2658-7	SHE	ET	,	ΩE	,	

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	NT LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS

DRIL	LING MET	HOD AN	D EQUI	PMENT HOLLOW	STEM AUGERS	
WATE	ER LEVEL	S			START 11-5-92 FINISH 11-5-9	LOGGER J.FRIZENSCHAF
≆F.	:	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
		,				Surface material consists of a 1-foot thick layer of concrete over fine grained, silty sand.
5.0	5.0	1-MC	1.5	9-12-13-17	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, medium dense, homogeneous.	OVA = - ppm HNu = 0 ppm
	7.0				-	
10.0	10.0	2-MC	1.5	7-12-15-19	LEAN CLAY, (CL), dark brown, moist, very stiff, some silt, homogeneous.	OVA = 0 ppm HNu = 0 ppm
,	12.0					
15.0	15.0	3-MC	1.5	5-10-30-30	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, dry, dense, homogeneous.	OVA = 0 ppm HNu = 0 ppm
	19.0	За-МС	1.5	18-30-34-40	17.0' to 18.0': SANDY SILT. (ML), light brown, dry, hard, homogeneous with white streaks. 18.0' to 19.0': POORLY GRADED SAND WITH SILT.	OVA = 80 ppm HNu = 20 ppm
20.0	20.0	4-MC	1.5	23-30-33-40	(SP-SM), light brown, dry, dense, homogeneous. POORLY GRADED SAND WITH SILT AND GRAYEL. (SP-SM), light brown, dry, dense,	OVA = 0 ppm HNu = 0 ppm
					homogeneous.	
25.0	25.0	5-MC	2.0	29-45-58-75	25.0' to 25.5': LEAN CLAY, (CL), dark brown, moist, hard, homogeneous. 25.5' to 26.0':	OVA = 0 ppm HNu = 0 ppm
30.0					POORLY GRADED SAND WITH SILT AND GRAVEL. (SP-SM), light brown, very dense, homogeneous. 26.0' to 27.0': WELL GRADED SAND, (SW), light brown to light gray, dry, very dense, homogeneous. END OF BORING AT 27.0 FEET	
	-					



PROJECT	NUMBER
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BORING NUMBER

265B-8

SHEET 1 OF 1

PROJEC	CT NA	Y CLEA	N RCRA	FACILITY ASS	ESSMENT LOCATION MCA	AS-EL TORO
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
			ID EQUI	PMENT HOLLOW		22 LIETOVOTOLI
WATER	LEVEL	SAMPLE	-	CTANDARD	START 11-5-92 FINISH 11-5-9	
₽Ţ.	ļ	T	T	STANDARD PENETRATION TEST	SOIL DESCRIPTION	COMMENTS
88	VAL	AND H:	/ERY	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY	DEPTH OF CASING, DRILLING RATE
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
000	===	- F Z	<u> </u>			
-						
-						
-						Headspace analyses taken between
5.0	5.0					sleeves.
5.0		1-MC	2,0	12-12-6-7	POORLY GRADED SAND WITH CLAY, (SP-SC), dark brown, moist, loose, fine to	Headspace reading similar to background.
	7.0	I MC	2.0		medium grained sand, mica.	background.
-						
-						
10.0	10.0				DOODLY CRAPED CAND HATH CLAY	-
-		2-MC	2.0	6-6-12-5	POORLY GRADED SAND WITH CLAY. (SP-SC), brown, moist, loose to medium dense, fine to medium grained sand.	OVA = 0.5 ppm
_	12.0		<u> </u>		dense, line to medium gramed sand.	
-						
-	15.0				-	-
15.0 —	15.0			10 10 15 05	Similar to 2-MC except light brown, medium	OVA = 0.5 ppm
	17.0	3-MC	1.9	10-10-15-25	dense.	•
					-	• •
20.0	20.0					
-0.0		 4-MC	1.8	10-10-15-22	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, moist, medium dense,	OVA = 1 ppm
	22.0				fine grained sand.	
-						-
-		· - -			· · · · · · · · · · · · · · · · · · ·	•
25.0	25.0				WELL GRADED SAND. (SW), yellowish	OVA ≈ 2 ppm
-	07.0	5~MC	1.8	10-13-12-20	brown, dry to moist, medium dense.	- 2 ppm
†	27.0	l			Similar to 5-MC.	; ·
	29.0	5a-MC	1.6	6-8-8-19	,	
†	20.0				END OF BORING AT 29.0 FEET	
30.0 —					7	
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BORING NUMBER

265B-9

SHEET 1 OF 1

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE		
	TION _			······	DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFORNIA
DRILLI	NG MET	HOD AN	D EQUIF	MENT HOLLOW	STEM AUGERS	
WATER	LEVELS	3			START 11-5-92 FINISH 11-5-9	2 LOGGER HEICKRICH
SAMPLE STANDARD PENETRATION				STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
5.0 —	5.0				- - -	Headspace analyses taken between sleeves, unless indicated otherwise.
-	7.0	1-MC	1.9	2-2-1-2	POORLY GRADED SAND WITH CLAY. (SP-SC), moist, very loose, fine grained sand, mica.	OVA = 0.5 ppm OVA = 4 ppm in bag after 5 minutes.
-						
10.0 —	12.0	2- M C	1.9	5-2-4-10	CLAYEY SAND. (SC), dark brown, moist, loose, poorly graded, fine grained sand, mica.	Headspace reading similar to background. OVA = 1.5 ppm (in bag)
-	12.0					
15.0 —	15.0	3-MC	1.8	7-1-8-10	Similar to 2-MC except loose to medium dense.	Headspace reading similar to background.
-						
20.0 —	20.0	4-MC	1.7	10-10-11-13	POORLY GRADED SAND WITH CLAY, (SP-SC), brown, moist, medium dense, fine grained sand.	Headspace reading similar to background.
-	25.0					
25.0	27.0	5-MC	0.5		WELL CRADED SAND (SW) doubt maint	OVA - F com (in bee)
_	29.0	5a-MC	1.8	11-6-6-10	WELL GRADED SAND, (SW), dry to moist, loose.	OVA = 5 ppm (in bag)
30.0 —	31.0	5b-MC	1.7	5-7-9-11	END OF BORING AT 31.0 FEET	
-					• • • • • • • • • • • • • • • • • • •	



PROJECT NUMBER	BORING NUMBER	
LA070022.RV	265B-10	SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSME	NT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS		

ELEVAT			, .		DRILLING CONTRACTOR BEYLIK DRILLING	INC, LA HABRA, CALIFURNIA
DRILLI	NG MET	HOD, AN	D EQUI	PMENT HOLLOW	STEM AUGERS	
WATER LEVELS					START 11-6-92 FINISH 11-6-9	LOGGER J.FRIZENSCHAF
x Ĥ		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-	-					Surface material consists of a 1-foot thick layer of concrete over lean clay material.
5.0	5.0					
	7.0	1-MC	1.5	5-11-16-25	5.0' to 6.0': LEAN CLAY, (CL), dark brown, moist, very stiff, homogeneous. 6.0' to 7.0':	OVA = 0 ppm HNu = 0 ppm
_	10.0				POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, medium dense, homogeneous, fine gravel beginning at 6.5 ft of depth.	
10.0	12.0	2- M C	2.0	10-40-31-50	SILT, (ML), dark brown, moist, hard, very plastic, homogeneous, with white concretions.	OVA = 0 ppm HNu = 0 ppm
-						
5.0	15.0	3-MC	2.0	21-29-30-35	POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, dense, with 0.5cm diameter gravel particles at 16.5 ft of depth, local gray sand streaks.	OVA = 0 ppm HNu = 0 ppm
-				,		
0.0	20.0	4-MC	1.5	25-35-40-45	20.0' to 21.0': POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, dense, with	OVA = 0 ppm HNu = 0 ppm
-					white concretions. 21.0' to 22.0': WELL GRADED SAND WITH SILT AND - GRAVEL, (SW-SM), light brown, very dense.	
5.0	25.0 26.5	5-MC	1.5	35-75-50	25.0' to 26.0': POORLY GRADED SAND WITH SILT. (SP-SM), light brown, moist, very dense,	OVA = O ppm HNu = O ppm
-					white concretions. 26.0' to 26.5': SANDY SILT WITH GRAVEL, (ML), light brown, dry, hard, cemented with white concretions. END OF BORING AT 26.5 FEET	
0.0 —					-	
-						



PROJECT	NUMBER
LA07002	2.RV

BORING NUMBER

269B-1

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVATION		DRILLING CONTRACTOR BEYLIK DRILLING INC. LA HABRA, CALIFORNIA					
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM A	UGERS					
WATER LEVELS		START 11-5-92	FINISHFINISH	LOGGER A.GIMURTU			

	LEVELS			MENT HOLLOW	START 11-5-92 FINISH 11-5-9	2 LOGGER A.GIMURTU
SAMPLE STANDARD PENETRATION				STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-				·	SILTY SAND. (SM), brown, moist, low density.	Surface material consists of 4" thick concrete.
5.0 — -	5.0 6.5	1-MC	1.8	12-13-13	WELL GRADED SAND, (SW), light brown, moist, medium dense, coarse to fine grained sand.	OVA = 1 ppm
_	,				granica sana.	
10.0 —	10.0		· .			
-	11,5	2-MC	1.7	13-13-22	SANDY LEAN CLAY. (CL), dark brown, moist, very stiff, fine grained sand, little to some silt.	OVA = 0 ppm
, -						
- 15.0 —	15.0					
-	16.5	3-MC	1.7	10-12-17	SANDY ELASTIC SILT, (MH), brown, moist, very stiff, sandy, micaceous silt, some fine _ grained sand.	OVA = 3 ppm
-			٠			
20.0	20.0					OVA = 1 pom
_	21.5	4-MC	1.8	12-20-20	<u>SILTY SAND</u> , (SM), brown, moist, medium dense, fine grained sand, trace clay.	
- -	-					
25.0 —	25.0				WELL CRAPED CAND (DU) Each beaut	0//4 = 1 00=
_	26.5	5∸MC	1.7	10-10-25	WELL GRADED SAND, (SW), light brown, moist, medium dense, fine to medium grained sand.	OVA = 1 ppm
-					END OF BORING AT 26.5 FEET	
30.0 —			,			· · · · · · · · · · · · · · · · · · ·
-						
-					-	



PROJECT	NUMBER
LA07002	2.50.10

BORING NUMBER

271A-1

SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
DRILLI	NG MET	HOD AN	D EQUII	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	· · · ·		
WATER	LEVELS			T	START 10/13/92 FINISH 10/14			
MET.		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
					Surface material consists of <u>POORLY</u> <u>GRADED SAND WITH GRAVEL</u> (SP), loose.	Start drilling at 11:03.		
-								
5.0 —					<u>WELL GRADED SAND WITH SILT</u> (SW-SM), light brown, moist.	<u> </u>		
-								
-	10.0							
10.0 —	12.0	1-MC	1.9	14-10-27-11	POORLY GRADED SAND (SP), brown, moist, medium dense, fine to medium grained.	Headspace reading on OVA similar to background.		
		,						
15.0 —	-							
_					• • • • • • • • • • • • • • • • • • •			
20.0	20.0				POORLY GRADED SAND WITH SILT	Headspace reading 0.2 ppm on 0VA and		
-	22.0	2-MC	1.5	3-6-31-24	(SP-SM), light brown, moist, dense.	0 ppm on HNu.		
		:			· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • •		
25.0 —					<u>-</u>	<u>-</u> -		
-								
30.0	30.0		· ·		· · · · · · · · · · · · · · · · · · ·			
30.0	32.0	3-MC	1.8	23-42-42-54	CLAYEY SAND (SC), brown, moist, very dense, fine grained.	Headspace reading on OVA similar to background.		
-				·				



BORING NUMBER

271A-1

SHEET 2 OF 2

				FACILITY ASSE		
					DRILLING CONTRACTOR BEYLIK DRILLING	3, INC., LA HABRA, CALIFORNIA
				PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	
$\overline{}$	LEVEL	S				/92 LOGGER K. HUCKRIEDE
₹Ê		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						
40.0 —	40.0				SILTY SAND (SM), brown, moist, dense,	Headspace reading 4 ppm on OVA and O
-	42.0	4-MC	1.8	7-18-20-55	fine grained.	ppm on HNu.
-					- 	
45.0 —	44.0	4A-MC	2.0	31-34-31-69	CLAYEY SAND (SC), brown, moist, very dense, fine grained.	Headspace reading 2 ppm on OVA.
-	46.0					- -
_					<u>-</u>	
50.0 —	50.0				LEAN CLAY WITH SAND (CL), brown, moist, hard, fine sand.	Headspace reading 1.5 ppm on OVA and
-	52.0	5-MC	1.3	27-35-37-47	nard, tine sand.	Oppm on HNu.
_			·			1
55.0 —						
-					- -	
-						
60.0 —	60.0				- SILT WITH SAND (ML), brown, moist, hard,	Headspace reading on OVA similar to
-	62.0	6-MC	2.0	11-14-32-40	fine sand.	background.
-					Total Depth at 62.0 Feet.	
65.0 —					- -	
_						
-						-
-						-



BORING NUMBER

272A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TO)RO	
ELEVATION	DRILLING CONTRAC	TOR BEYLIK DRILLING, INC., LA	HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, INGERSO	L-RAND TH-10	•	
	10/20/02	10/20/02	A GIMIRTU	

			D EQUIP	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	/20/02
WATER	LEVELS					/29/92 LOGGER A. GIMURTU
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Start drilling at 12:30.
	-					
5.0 -	:			·		
10.0 –	10.0					
10.0 -	12.0	1-MC	2.0	29-42-49-60	LEAN CLAY WITH SAND (CL), dark brown, moist, hard, fine sand, trace to little silt, trace 1 mm diameter white grains.	Sample headspace 8.5 ppm in sample sleeve at 11.0 feet with OVA.
15.0 -						
20.0 -	20.0				Similar to 1-MC, no white grains.	Sample headspace 50.0 ppm in sample
	22.0	2-MC	1.8	12-15-36-30	Gillia to 1 116, 110 time grants	sleeve at 21.0 feet with OVA.
25.0 -	- - -					
			·	·		
30.0 -	30.0			13-25-50-60	SANDY SILT (ML), brown, moist, hard, coarse to fine sand.	Sample headspace 0 ppm at 31.0 feet with OVA.
	32.0	3-MC 3A-MC	1.4	30-40-40-40	Similar to 3-MC.	
	34.0					



PROJECT NUMBER	BORING NUMBER		
LA070022.S0.10	272A-1	CUEET	2

PROJECT NAVY CLEAN RCRA FACILIT	Y ASSESSMENT	LOCATION MCAS-EL T	ORO	
ELEVATION	DRILLING CONTRACT	OR BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT H	ISA, 3-1/4" ID, 6-1/2" OD, INGERSOL	-RAND TH-10	· · · · · · · · · · · · · · · · · · ·	
MATER LEVELO	START 10/29/92	ETNIES 10/29/92	LOCCED A. GIMURTU	

DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10						
WATE	ER LEVELS	S			START 10/29/92 FINISH 10/29/	92 LOGGER A. GIMURTU
3	-	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
40.0	40.0		•		<u>SILTY SAND</u> (SM), light brown, moist, very	Sample headspace 0 ppm at 41.0 feet
	42.0	4-MC	2.0	10-20-55-60	dense, fine grained.	with OVA.
	-				-	
45.0						
50.0	50.0	5-MC	2.0	27-40-45-60	Similar to 4-MC.	Sample headspace 0 ppm at 51.0 feet with OVA.
	- 32.0					-
55.0						
	7					
60.0	60.0				SILTY SAND (SM), reddish-brown, moist,	Sample headspace 0 ppm at 61.0 feet.
	62.0	6-MC		30-47-75 -75/5"	very dense, fine grained. Total Depth at 62.0 Feet.	-
			-			
65.0					-	



BORING NUMBER

275A-1

SHEET 1 OF 2

					<u> </u>		
PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS							
WATER	LEVELS			1	START 11/9/92 FINISH 11/9/9		
₹Ê		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	RESULTS . 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
					_	Start drilling at 08:45.	
-						· · · · · · · · · · · · · · · · · · ·	
-		•				<u>.</u>	
-					<u>'-</u>		
5.0 —						-	
-						· -	
-						- -	
-						-	
100	10.0						
10.0 —		1-MC	1.8	9-11-16-27	<u>LEAN CLAY</u> (CL), brown, moist, very stiff, some white streaks.	HNu=0 ppm OVA=0 ppm	
_	12.0	1 140	1.0		·		
_						-	
-					·	···	
15.0 —		·			<u> </u>	<u> </u>	
_					· -		
-		• ,				,	
-					-		
-	20.0					·	
20.0 —		2-MC	1.7	8-8-10-24	Similar to 1-MC.	HNu=15 ppm OVA=0 ppm	
	22.0	2 MC	1.7		· -	· -	
-					· -		
-					-	· -	
25.0 —				·	<u> </u>	-	
-					- · · · · · · · · · · · · · · · · · · ·	-	
-		-				- -	
-	·					-	
-	30.0		\		-		
30.0		2 1/0	10	7-12-18-24	SILTY CLAY (CL/ML), brown, moist, very stiff, trace fine sand.	HNu=0 ppm OVA=0 ppm	
	32.0	3-MC	1.8	, , , , , , , , ,			
_				4.		-	



BORING NUMBER

275A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HOLLOW STEM AUGERS		

			D EQUII	MENT HOLLOW		02 D DDD
	LEVEL			Γ	START 11/9/92 FINISH 11/9/	
₩.		SAMPLE	1	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-						
-						
40.0 —	40.0				CHTV CLAV (CLAW) have	
-	42.0	4-MC	1.8	12-14-20-25	<u>SILTY CLAY</u> (CL/ML), brown, moist, very stiff.	HNu=0 ppm OVA=0 ppm
-						1
-						-
45.0						1
45.0 —	1				en en en en en en en en en en en en en e	-
-	1					1
	1					1
-						
50.0 —	50.0					
- 0.0	52.0	5-MC		12-15-20-25	<u>SILTY CLAY</u> (CL/ML), brown, moist, very stiff, micaceous, trace fine sand.	HNu=0 ppm - OVA=0 ppm
.	32.0					-
-						1
	1					1
55.0 —	1					-
-						•
-				:		-1
-		٠,				
	60.0	·				
80.0 —	62.0	6-MC	2.0	9-16-24-28	SILTY CLAY (CL/ML), brown, moist, hard, clay more plastic than above.	HNu=0 ppm - OVA=0 ppm
-	02.0				Total Depth at 62.0 Feet.	
-						1
-						
65.0 —					-	-
-						-
-						
-						-
_						



BORING NUMBER

275A-2

SHEET 1 OF 2

PROJEC	T NAV	Y CLEA		FACILITY ASS					S-EL TORO		_
ELEVA								LLING,	INC., LA HABRA, CA	LIFORNIA	
			D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2"			** 10 100	· · · · · · · · · · · · · · · · · · ·	0.001.770	
WATER				ı .	START	11/9/92	FINISH	11/9/92		C. POLITO	_
.ĕĒ		SAMPLE		STANDARD PENETRATION		SOIL DESCRI	PTION		COI	MMENTS	╝
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	I MOISTURE CO	ISCS GROUP SY INTENT, RELATENCY, SOIL ST	YMBOL, COLOR, TIVE DENSITY RUCTURE,		DEPTH OF CASING DRILLING FLUID I TESTS AND INST	LOSS	
									Start drilling at 1	3:30.	
						1		ا			
]			1
- 1											1
5.0											٦
								- 1			1
-			1					- 1			1
								+			1
-	40.0							- 1			\dashv
10.0	10.0				LEAN CLAY	(CL), brown, m	oist, stiff, trace	, –	HNu=O ppm		\dashv
-		1-MC	1.8	4-6-7-10	silt.			4	OVA=0 ppm		
	12.0							4			\dashv
				·		•		4.	•		4
								4			4
15.0								4			4
		*						- 1)		
						•				•	1
						,					
										•	
20.0	20.0										
20.0		2-MC	10	5-14-9-30	SANDY CLA) medium to fil		moist, very stiff	f, 7	HNu=O ppm OVA=O ppm		
	22.0	2-MC	1.2					1			1
								1			1
								1			1
1					- "		•	1			1
25.0	:							\dashv			7
								4			+
-				·				1			+
								4			-
-								4			+
30.0	30.0		· ·		SILTY CLAY	(CL/ML), brow	vn, moist, hard,	- 4.	HNu=0 ppm		4
		3-MC	1.2	9-13-22-30	micaceous.		. , , , , , , , , , , , , , , , , , , ,	4	OVA not taken du modificiations.	e to equipment	1
	32.0							1	ouriolations.		1



BORING NUMBER

275A-2

SHEET 2 OF 2

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	ESSMENT	LOCATIO	N MCAS	G-EL TORO	
	TION				DRILLING CONTRAC	TOR BEYLIK DRI	ILLING,	INC., LA HABRA, CALIFO	RNIA
				MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSO		*1/0/00		DOLLTO
WATER	LEVELS			<u>`</u>		FINISH	11/9/92		
¥£.		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCR	IPTION		COMMEN	ITS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP S MOISTURE CONTENT, RELA OR CONSISTENCY, SOIL S MINERALOGY	ATIVE DENSITY		DEPTH OF CASING, DE DRILLING FLUID LOSS TESTS AND INSTRUME	
			-				-		
. -				·			4		
40.0 —	40.0	4-MC	1,9	78-23-34-40	Similar to 3-MC.			HNu=O ppm	
_	42.0	4 140	1.9				-		
-							1		
45.0 —							4		
-						•	-		
50.0 —	50.0		:		Similar to 4-MC.			HNu=O ppm	
- -	52.0	5-MC	1.8	9-20-28-40			4.		
-							-		
55.0 —						•	`		
-		,					1		
-	60.0	,					1		
80.0 — -		6-MC	1.5	8-20-30-45	CLAYEY SAND (SC), red dense, fine to medium sa	dish brown, moist nd.		HNu=0 ppm OVA=0 ppm	
-	62.0				Total Depth at 62.0 Fee	i.	-	, i	



BORING NUMBER

276A-1

SHEET 1 OF 2

	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
		Y ULEAI	N HLHA	FAUILITY ASSE					
ELEVA1				UCA 1-	DRILLING CONTRACTOR BEYLIK	UMILLING,	INC., LA HABRA, CALIFORNIA		
					1/4" ID, 8" OD, FAILING F-10	11/0/03	HARDESTY		
			NCOUN			SH 11/9/92			
₹Ê		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COL MOISTURE CONTENT, RELATIVE DENSI OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	OR, TY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
							Start drilling at 09:50.		
]			
				<i>:</i>		. 7			
						1	·		
5.0							· · · · · · · · · · · · · · · · · · ·		
						.1			
						1			
						. 1	-		
	10.0					1			
10.0 —	. 10.0				SANDY LEAN CLAY (CL), dark brown, moist, very stiff, coarse to fine sand.		HNu=0 ppm OVA=0.2 ppm		
-	12.0	1-MC	1.7	7-11-14-12	moist, very still, coarse to line said.	+			
-	12.0				A. Carlotte	-			
-						4	-		
-									
15.0 —	·			v s s			· —		
-				:		4	-		
-						4			
-							, -		
-						-	•		
20.0	20.0				LEAN CLAY WITH SAND (CL), dark bro	own,	HNu=80 ppm		
		2-MC	1.6	6-12-21-30	moist, hard, coarse to fine sand.	, , _, ,	OVA=O ppm		
-	22.0					4	ing sa managan na managan na managan na managan na managan na managan na managan na managan na managan na mana Managan na managan na m		
							en en en en en en en en en en en en en e		
						4			
25.0							<u>. </u>		
						4	_		
				,		1			
30.0	30.0				0.000				
30.0	32.0	3-MC	1.5	15-21-17-26	SANDY LEAN CLAY (CL), dark brown, moist, very stiff, coarse to fine sand.		HNu=12.0 ppm OVA=0 ppm		
-	·								



PROJECT NUMBER BORING NUMBER 276A-1 LA070022.S0.10

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILI	TY ASSESSMENT	LOCATION MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA,	CALIFORNIA
DRILLING METHOD AND EQUIPMENT	HSA, 4-1/4" ID, 8" OD, FAILING F-10		
		1	

ATER	LEVELS	NOT E	ENCOUN		START 11/9/92 FINIS	H 11/9/92	
₹Ē.	-	SAMPLE	<u> </u>	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION		COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)		SOIL NAME, USCS GROUP SYMBOL, COLOF MOISTURE CONTENT, RELATIVE DENSIT OR CONSISTENCY, SOIL STRUCTURE,	₹,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS
SURF	INTE	TYPE	RECC (FT)	6" -6" -6" (N)	MINERALOGY		TESTS AND INSTRUMENTATION
-	-					4	
-						. 1	
-	40.0					4	
).0		4-MC	1.5	9-7-15-19	<u>SANDY LEAN CLAY</u> (CL), tan to brown, moist, very stiff, interbedded with fine sand.		HNu=20 ppm OVA=0 ppm
: =	42.0						
-							
.0 — _			***************************************				
_						-	
-							
.o — -	50.0	5-MC	1.5	15-20-21-27	50-51' <u>CLAYEY SAND</u> (SC), tan to brow moist, medium dense, fine to medium grains.	ın,	HNu=4.0 ppm OVA=0 ppm
- -	52.0				51-52' <u>SANDY LEAN CLAY</u> (CL), dark brown, moist, very stiff, fine sand.	-	
_						-	
.0 —							
-			-			-	
-	60.0						
- 0.0 -	60.0	6-MC	1.4	7-19-24-30	LEAN CLAY WITH SAND (CL), brown, mo hard, fine sand, interbedded with layers fine sand.	oist,	HNu≐36.0 ppm
- -	62.0				Total Depth at 62.0 Feet.		
_						-	
- 0. -						-	
-						-	
-							



BORING NUMBER

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SHEET 1 OF 2

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PROJEC	CT NAV	Y CLEA	N RCRA	FACILITY ASSI		CAS-EL TORO
	TION _				DRILLING CONTRACTOR BEYLIK DRILLIN	G, INC., LA HABRA, CALIFORNIA
					1/4" ID, 8" OD FAILING F-10	
WATER	LEVEL	NOT E	ENCOUN		START 11/9/92 FINISH 11/9	/92 LOGGER HARDESTY
ĭ.F		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
<u> </u>	<u>Z</u>	FZ	뿚뜨	(14)		
						Start drilling at 15:15.
-						
	-					
_						
5.0 —						-
-				,		
-						
_						
10.0 —						
	11.0	-				
· -	13.0	1-MC	1.6	16-22-37-49	SANDY LEAN CLAY (CL), dark brown, moist, hard, fine to medium sand.	HNu=28 ppm OVA=0 ppm
-	10.0					
-	1					
15.0 —						-
-						1
-	1			,		1
-						1
-	20.0					1
20.0 —	20.0				Similar to 1-MC, very stiff.	HNu=6.0 ppm
-		2-MC	1.6	14-17-24-22		OVA=O ppm
-	22.0					1
-				·		+
-	1			·		+
25.0 —	1					-
-						+
-						4
-	}			,		
-						4
30.0 —	30.0				Similar to 2-MC, very stiff to hard.	HNu=50.0 ppm -
-		3-MC	1.9	12-19-20-29		OVA=0 ppm
-	32.0					4
-						4



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SHEET 2 OF 2

						
					ESSMENT LOCATION MCA	
ELEVA	TION _	HUU VN	ח במוזו	DMENT HSA. 4-	DRILLING CONTRACTOR BEYLIK DRILLING. 1/4" ID, 8" OD FAILING F-10	INC., LA HABRA, CALIFURNIA
			ENCOUN		START 11/9/92 FINISH 11/9/93	LOGGER HARDESTY
	1	SAMPLE				COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
SEE	NI F	Ϋ́	REC (FT	(N)	MINERALOGY	TEG TO AND INSTRUMENTATION
						_
-						
-	-					:
40.0 —	40.0				LEAN CLAY WITH SAND (CL), dark brown,	HNu=43.0 ppm
-	400	4-MC	1.7	11-17-25-31	moist, hard, fine sand.	OVA=O ppm
-	42.0					
-					1	
45.0					. 1	
45.0 —						
		ř.				
-						
_						
50.0 —	50.0				CLAYEY SAND (SC), tan, moist, very	HNu=20.0 ppm
-		5-MC	1.4	17-34-47 -50/2"	dense, fine to coarse grains.	OVA=0 ppm
-	52.0			00/2		
-					. ,	
-					· · · · · · · · · · · · · · · · · · ·	·
55.0 —					-	
-						
			,			
60.0	60.0		`		LEAN CLAY HITTI CAND (CL) beauting	
-		6-MC	0.9	19-22-32-54	LEAN CLAY WITH SAND (CL), brown, moist, hard, fine sand.	HNu=8.0 ppm OVA=0 ppm
_	62.0				Total Double at 62.0 Foot	the Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control of Control
_					Total Depth at 62.0 Feet.	
-					4	-
65.0 —	,					-
-					4	-



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SOIL BORING LOG

BORING NUMBER

PROJECT NAVY CLEAN RCRA FACILITY	ASSESSMENT LOCATION MC	CAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLIN	G, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HS	, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	
WATER LEVELS NOT ENCOUNTERED	START 11/13/92 FINISH 11/13	/92 LOGGER C. POLITO

	WATER	LEVELS NOT ENCOUNTERED				START 11/13/92	FINISH 11/13/92	LOGGER C. POLITO
			SAMPLE			SOIL DESCRIPTION		COMMENTS
	DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL MOISTURE CONTENT, RELATIVE I OR CONSISTENCY, SOIL STRUCTU MINERALOGY	, COLOR, DENSITY DRE,	DEPTH OF CASING DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
	SEE	NI	T Y F	RE((FT	(N)	MINERALUGY		
	: -				,			
	-							
	5.0 —							
!	10.0 —	10.0	1-MC	1.6	8-6-8-16	<u>SANDY CLAY</u> (CL), brown, moist, sand.	stiff, fine	OVA=5.0 ppm
	-	12.0		-				
	15.0 —			-				
					,			
	20.0 —	20.0	-	· .	44 00 00 25	<u>SILTY CLAY</u> (CL/ML), brown, mo micaceous.	ist, hard,	OVA=5.0 ppm
		22.0	2-MC	1.6	14-22-26-35	illedeevus.	. 1	
	25.0 —							
	-						-	
	-	20.0					-	
	30.0 — -	30.0	3-MC	1.8	10-18-26-30	CLAYEY SILT (ML/CL), brown, m micaceous.	oist, hard,	HNu=0 ppm OVA=5.0 ppm
	-			·				
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SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	T LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID.	6-1/2" OD, INGERSOL-RAND TH-10

DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 WATER LEVELS NOT ENCOUNTERED START 11/13/92 FINISH 11/13/92 LOGGER C. POLITO								
$\overline{}$								
ac (<u> </u>	SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
-				·				
40.0 —	40.0			· .	SANDY SILT (ML), brown, moist, hard, HNu=0 ppm			
-	42.0	4-MC	1.4	8-21-25-43	micaceous, fine sand, some clay. OVA=1.0 ppm			
-								
45.0 —								
-								
-								
50.0 —	50.0	5-MC	1.8	33-54-90 -50/3"	Layers of sandy silt similar to 4-mc interbedded with <u>SILTY SAND</u> (SM), grayish brown, moist, very dense, well graded sand.			
_		,						
55.0 —								
-								
-	-	•	·					
60.0 —	62.0	6- M C	2.0	19-19-15-65	Similar to 6-MC, except dense. HNu=0 ppm OVA=1.0 ppm			
-	02.0				Total Depth at 62.0 Feet.			
65 .0 —								
-	-							



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SHEET 1 OF 2

PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE	SSMENT	LOCATION M	CAS-EL TORO
ELEVA						R BEYLIK DRILLIN	NG, INC., LA HABRA, CALIFORNIA
				PMENT HSA, 3- ITERED	1/4" ID, 6-1/2" OD, INGERSOL- START 11/16/92	-RAND TH-10 FINISH 11/16	6/92 LOGGER C. POLITO
x₽		SAMPLE		STANDARD PENETRATION	SOIL DESCRIP	TION	COMMENTS
BELOW E (FT)	AL	9	.H.	TEST RESULTS	SOIL NAME, USCS GROUP SY		DEPTH OF CASING, DRILLING RATE

	WATER	LEVELS	NOT E	NCOUN	TERED	START 11/16/92 FINISH 11/16/9	LOGGER C. POLITO		
						SOIL DESCRIPTION	COMMENTS		
	DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBÉR	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
	-					-			
	5.0 -								
	10.0	10.0				CLAYEY SILT (ML/CL) brown maist very	- - OVA=0 ppm		
).	-	12.0	1-MC	2.0	11-13-14-14	CLAYEY SILT (ML/CL), brown, moist, very stiff, micaceous.			
	15.0 —								
	-								
	20.0 —	20.0	2-MC	1,7	13-22-30-38	Similar to 1-MC, hard.	OVA=0 ppm		
	-	22.0				<u>-</u>			
	25.0 —				·				
	- 	30.0		-					
)	30.0	32.0	3-MC	1.8	7-13-22-30	SILTY CLAY (CL/ML), brown, moist, hard, trace mica.	HNu=5.0 ppm OVA=0 ppm		
		-					•		



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SHEET 2 OF 2

PROJEC	T NAV	Y CLEAI	N RCRA	FACILITY ASSE	ESSMENT LOCATION MC	AS-EL TORO				
ELEVA"	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLI	NG MET	HOD AN	D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10					
	LEVELS				START 11/16/92 FINISH 11/16/	92 LOGGER C. POLITO				
-£		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
<u> </u>			<u>≻</u>	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,					
A CHE	RVA	A N	VER		MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	MINERALOGY	TESTS AND INSTRUMENTATION				
0.00	<u>~</u>	F 2	æ =							
-						-				
-						-				
-						-				
-		_		·		-				
40.0 —	40.0				SILTY SAND TO SANDY SILT (SM to ML),	HNu=0 ppm —				
-		4-MC	2.0	16-20-30-61	light brown, moist, very dense to hard, micaceous, slightly cohesive at 50/50	OVA=0 ppm				
-	42.0				sand and silt, fine sand.	∮				
-	1									
-										
45.0 —					-	-				
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50.0 —	50.0									
_		5-MC	2.0	15-50-51-100	<u>SILTY SAND</u> (SM), light brown, moist, very dense, micaceous, fine sand.	HNu=0 ppm OVA=0 ppm				
	52.0	3-140	2.0							
		ŀ								
			:							
55.0 —										
-										
-										
-	1					_				
-	60.0									
80.0 —	00.0				SANDY CLAY (CL), dark brown, moist, hard, fine sand.	HNu=0 ppm OVA=0 ppm				
-	60.0	6-MC	1.3	31-52-56/3"	nard, the sand.	OVA-0 ppm				
-	62.0				Total Depth at 62.0 Feet.					
-						1				
j				1		· · · · · · · · · · · · · · · · · · ·				
85.0 —					la de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	<u> </u>				
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PROJEC	T NAV	Y CLEA	N RCRA	FACILITY ASSE	SSMENT LOCATION MCA	S-EL TORO			
ELEVA"					DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA			
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22									
WATER	LEVELS	·			START 11/13/92 FINISH 11/13/9	LOGGER K. HUCKRIEDE			
∡ F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	بر ا	Q	RY	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE			
THE	INTERVAL	E AN BER	OVE	6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
SEP	INT	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION			
						Start drilling at 14:55.			
-				·					
_	1				POORLY GRADED SAND (SP), gray to light brown, dry, fine grained.				
5.0 —									
-	1								
_									
-									
	10.0								
10.0 —				7-8-15	POORLY GRADED SAND (SP), light brown, dry to moist, medium dense, fine grained,	Headspace reading similar to background on OVA, between sleeves.			
-	12.0	1-MC	1.4		micaceous.				
-									
_	1					•			
-									
15.0 —									
-					:				
_			:						
_				,					
	20.0								
20.0 —		2-MC	1.3	7-8-10	POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, loose to medium	Headspace reading at 1 ppm on OVA, between sleeves.			
	22.0	2-MC	1.9		dense, fine grained, micaceous.				
_		- - -				_			
25.0 —			*		_				
20.0									
] _] .				,				
] -									
30.0 —	30.0				LEAN CLAY WITH CAND (CL) become point	Hendenana randing similar to			
-		3-MC	1.5	10-9-12	<u>LEAN CLAY WITH SAND</u> (CL), brown, moist, stiff, fine sand.	Headspace reading similar to background on OVA.			
.	32.0					_			
_						·			



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PROJECT NAVY CLEAN RCRA FACILITY ASSESS	SMENT	LOCATION MCAS-EL 1	ORO
ELEVATION	DRILLING CONTRACTO	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA. 3-1/4	" ID, 6-1/2" OD, GUS PECH	BRAT-22	
WATER LEVELS	DTARY 11/13/92	Extrat 11/13/92	HUCKRIEDE

MATER	LEVEL				· · · · · · · · · · · · · · · · · · ·	SH 11/13/9	LOGGER K. HUCKR	IEDE
æ[-	<u></u>	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLO MOISTURE CONTENT, RELATIVE DENSI OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	OR, TY	DEPTH OF CASING, DRILLING DRILLING FLUID LOSS TESTS AND INSTRUMENTATI	
-						_		
_						-		
-	1					7		
-	40.0			,		-		
).0 -	42.0	4-MC	1.3	10-8-10	POORLY GRADED SAND WITH SILT (SP-SM), tan to light brown, loose to medium dense, fine grained.	, 	Headspace reading similar to background on OVA.	
-	1					-	•	
						4		
-	1					4		
i.0 —	1					+		
-						-4		
-						4		
-			·		•	4		
-						4		
.0 — -	50.0	5-MC	0.6	11-11-15	WELL GRADED SAND (SW), tan, moist, medium dense.	-	Headspace reading similar to background on OVA.	
_	52.0	<u></u>				4		
_			,					
_						4		
.o —								
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.0 —	60.0					_]		
	62.0	6-MC	1.8	15-27-30-37	<u>CLAY WITH SAND</u> (CL), brown, moist, h fine sand.	ard,	Headspace reading similar to background on OVA.	
					Total Depth at 62.0 Feet.			
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_						4		1.
i.0 —						7		
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-						4		
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SOIL BORING LOG

SHEET 1

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION MCAS-EL TOR	10	
ELEVATION	DRILLING CONTRACTO	R BEYLIK DRILLING, INC., LA I	HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-	-RAND TH-10		
	4442400	11/12/00	A CIMIDTU	

	DRILLII	NG METI	HOD AND	EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10		
,	WATER	LEVELS	<u> </u>			STARTFINISH	11/13/92	LOGGER A. GIMURTU
	X)		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS
	DEPTH BELOW SURFACE (FT)	ΑĽ	<u> </u>	₽.	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,		DEPTH OF CASING, DRILLING RATE
	TH E	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,		DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
i	DEP SUR	IN	T Y P	REC (FT)	(N)	MINERALOGY		TEGGO AND INCOMENCE VIA VION
						Surficial material consisting of 2 inches topsoil and sod.		Start drilling at 12:15.
						topoon and oo all		
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	-						1	
	-	10.0					1	· · · · · · · · · · · · · · · · · · ·
	10.0 —				12-14-22			
	-	12.0	1-MC	0	12-14-22		1	- -
		12.0	1A-MC	2.0	12-13-27	SILTY SAND (SM), brown, moist, medium dense, some mica present, approximately	1	Sample headspace reading 0 ppm with HNu at 13.5 feet.
	-	13.5	14 140	2.0		30% silt, fine grained.	1	-
							1	
	15.0 —							
	_						1	
	-						1	,
	-						1	· · · · · · · · · · · · · · · · · · ·
		20.0			·		1	
	20.0 —	20.0	2 40		12-24-29	Similar to 1A-MC, dense.	-	Sample headspace reading 0 ppm with HNu at 21.5 feet.
	-	21.5	2- M C	1.5	,2 2.1 20		· -	Tivu at 21.5 feet.
	-						+ 1	
	-						1	en en en en en en en en en en en en en e
	-						+	
1	25.0 —						+	
	-						4	
	_						+	·
							4	
	-						+	<u>-</u>
	30.0 —	30.0			40.40.47	SILT WITH SAND (ML), brown, moist, very	4	Sample headspace reading 0 ppm with
	-	31.5	3-MC	1.5	10-18-27	stiff, moderate plasticity, mica present.	4	HNu at 31.5 feet.
	-			-			4	
	-					. •	4	
							1	



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PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA		·			DRILLING CONTRACTOR BEYLIK DRILLING	G, INC., LA HABRA, CALIFORNIA			
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10									
WATER	LEVEL				START 11/13/92 FINISH 11/13,	LOGGER A. GIMURTU			
₹Ē.	<u> </u>	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
- -									
40.0 —	40.0	1.110		12-22-37	<u>WELL GRADED SAND</u> (SW), light brown to gray, moist, dense, trace pebbles.	Sample headspace reading 150 ppm with			
-	41.5	4-MC	1.5	12 - 22 - 31	gray, moist, dense, trace peddies.	HNu at 41.5 feet.			
45.0 —									
-		·							
50.0 —	50.0 51.5	5-MC	1,4	14-22-48	Similar to 4-MC, more coarse.	Sample headspace reading 3 ppm with HNu at 51.5 feet.			
		·							
55.0 — - -									
- 60.0 -	60.0			42-69	SILTY SAND (SM), reddish-brown, moist,	- Sample headspace reading 0 ppm with -			
]	61.0	6-MC	1.0	42-69	very dense.	HNu at 61.0 feet.			
65.0 —	-				Total Depth at 61.0 Feet.				
-					- -				
	.								



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SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO						
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA			
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4"	ID, 6-1/2" OD, INGERSOL-F	RAND TH-10				
WATER LEVELS NOT ENCOUNTERED	START 11/12/92	FINISH 11/12/92	LOGGER C. POLITO			

ATER LEVELS NOT ENCOUNTERED					START 11/12/92 FINISH 11/12	/92 LOGGER C. POLITO
₹E	<u> </u>	SAMPLE	· ·	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELON SURFACE (FT)	AL	9	₩.	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING DOTLING DATE
FAC	INTERVAL	E AI BER	OVE	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE.	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
J.S.	INT	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	1E212 AND INSTRUMENTATION
						
-	1					
-	†					1
-	1			·		4
-						
) . —	-					
-	-					_
-	-		,			4
_	1					4
_						
0	10.0				OANDY OUT TO (MILE)	
		1-MC	2.0	10-12-12-15	SANDY SILT (ML), brown, moist, very stiff, trace mica.	HNu=10.0 ppm OVA=0 ppm
	12.0	, MC	2.0			
-			_			1.
_						1
-						1
0 —					-	-
-	1					†
_						
_						4
-						
.0 —	20.0		· · · · ·		Similar to 1-MC, but hard.	HNu=40.0 ppm
_		2-MC	2.0	12-18-24-30		OVA=4.0 ppm
_	22.0		· ·			-
_	•					·
0 —				-		
						1
						·
-	30.0					1
0 —	30.0				Similar to 2-MC.	HNu=40 ppm OVA=20 ppm
-	30.0	3-MC	2.0	15-15-29-32		UVA=2U ppm
-	32.0				· ·	
-						4
		. 1				1



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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA ²	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA							
	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10							
WATER	LEVELS	NOT E	NCOUN	TERED	START 11/12/92 FINISH 11/12	/92 LOGGER C. POLITO		
∡ ⊢		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
0 F	Ļ		≿	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEDTH OF CACINIC DOLL INC DATE		
TH B	INTERVAL	E AN SER	OVE	6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS		
DEPTH BELOW SURFACE (FT)	INTE	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY	TESTS AND INSTRUMENTATION		
					1			
						-		
_					•	1		
	:		٠	14		-		
	40.0					-		
40.0 —	40.0	• .			Interbedded 6" layers of material similar	HNu=30 ppm		
_	40.0	4-MC	2.0	20-35-46-60	to 3-MC and <u>POORLY GRADED SAND</u> (SP), brown, moist, very dense, medium to fine	OVA=60 ppm		
-	42.0				sand.	-		
_						-		
_		٠,		'		-		
45.0 —					-	-		
-						4		
						-		
-						-		
_					·	-		
50.0 —	50.0				Similar to 4-MC.	HNu=20 ppm		
		5-MC	2.0	17-34-57		OVA=125 ppm		
_	52.0		. *	-50/5"				
_						_		
_						_		
55.0 —					-	<u>.</u>		
_						_		
						_		
						_		
60.0 —	60.0				0:-1: 1: 1: 1: 1: 1: 1: 1:			
0.00		6-MC	1.5	35-50-70	Similar to 4-MC, gravel up to 1 inch.	HNu=10 ppm OVA=5 ppm		
	62.0		2	35-50 - 70 -70/5"				
			•		Total Depth at 62.0 Feet.			
]		
ا مدة]		
6 5.0 —					· · · · · · · · · · · · · · · · · · ·]		
						1		
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 SHEET 1 0F 2

ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22	

	LEVEL		n FGAII	PMENI HSA, 5-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22 START 11/13/92 FINISH 11/13/9	2 LOGGER K. HUCKRIEDE
	LEVEL					
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
5.0 —						Start drilling at 12:00.
10.0 —	10.0			5-10-15	POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, medium dense, fine	Headspace reading similar to background on OVA.
- - 15.0 —	12.0	1-MC	1.5		grained, micaceous.	
20.0 —	20.0	2- M C	1.0	10-11-15	Similar to 1-MC, less silt.	Headspace reading 15 ppm on OVA, between sleeves.
- 25.0 —						
30.0 —	30.0	3-MC	1.4	8-10-18	CLAYEY SAND (SC), medium dense, fine grained.	Headspace reading 1 ppm on OVA, between sleeves.



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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVA	TION _				DRILLING CONTRACTOR BEYLIK DRILLING	INC., LA HABRA, CALIFORNIA			
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22									
WATER	LEVELS	s			START 11/13/92 FINISH 11/13/9	LOGGER K. HUCKRIEDE			
₹Ê		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
HS.	INI	T N N N N N N N N N N N N N N N N N N N	EC (FT)	(N)	MINERALOGY	TESTS AND INSTROMENTATION			
-									
-						- -			
40.0 —	42.0	4-MC	1.3	7-8-11	SILTY SAND (SM), brown, moist, medium dense, fine grained, micaceous, <u>POORLY GRADED SAND WITH SILT</u> (SP-SM), in tip of sampler.	Headspace reading 10 ppm on OVA, between sleeves.			
-	42.0				ui samplei.	- -			
45.0 —									
-									
50.0 —	50.0				POORLY GRADED SAND (SP), moist, medium	Headspace reading similar to			
-	52.0	5-MC	0.8	7-9-11	dense, fine grained. _ _	background on OVÅ.			
-									
55.0 —						<u>-</u>			
_									
60.0 —	60.0	6-MC	1.5	9-18-15-26	SANDY LEAN CLAY (CL), reddish brown, moist, very stiff, fine sand.	Headspace reading similar to background on OVA between sleeves.			
-	62.0				Total Depth at 62.0 Feet.				



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SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
ELEVA"					DRILLING CONTRACTOR BEYLIK DRILLING	, INC., LA HABRA, CALIFORNIA		
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2' OD, GUS PECH BRAT-22								
WATER	LEVELS				START 11/12/92 FINISH 11/12/9	DOGGER K. HUCKRIEDE		
M()		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
						Start drilling at 14:00.		
			·					
						4		
				·				
5.0								
3.0					POORLY GRADED SAND WITH SILT (SP-SM), brown, moist, fine to medium grained, micaceous.			
		,	-			-		
-				:		-		
	10.0				<u>-</u>	-		
10.0 —		1-MC	1.7	4-5-16	POORLY GRADED AND WITH SILT (SP-SM), brown, moist, medium dense, fine to medium grained, micaceous.	Headspace reading 1.0 ppm on HNu, 1.5 — ppm on OVA, between sleeves.		
-	12.0					-		
-					<u> </u>			
-					<u>-</u>			
15.0						· .		
-					<u> </u>	•		
-								
-								
	20.0							
20.0 —				5-6-7	Similar to 1-MC.	Headspace reading 1.0 ppm on HNu.		
	22.0	2-MC	1.6	307				
				·		· ·		
25.0 —			_			1		
23.0				·				
]								
				·				
30.0 -	30.0				CTI TV CAND (CN) because and an array			
-		3-MC	1.5	7-11-16	SILTY SAND (SM), brown, moist, medium dense, fine grained, micaceous.	Headspace reading 2.0 ppm on OVA, between sleeves.		
-	32.0				4	, , , , , , , , , , , , , , , , , , ,		
-						-		
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SHEET 2 OF 2

PROJEC	T NAV	Y CLEAN	N RCRA	FACILITY ASSE	CAS-EL TORO			
ELEVAT	TION				DRILLING CONTRACTOR BEYLIK DRILLIN	IG, INC., LA HABRA, CALIFORNIA		
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2' OD, GUS PECH BRAT-22								
	LEVELS				START 11/12/92 FINISH 11/12	2/92 LOGGER K. HUCKRIEDE		
ΣĤ		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
_								
	40.0							
40.0 —	42.0	4-MC	1.5	13-12-20	<u>POORLY GRADED SAND</u> (SP), light brown, moist, medium dense, fine grained, micaceous.	Headspace reading similar to background on OVA between sleeves.		
-	72.0	•						
45.0 —			_					
-	-							
	50.0							
50.0 —	52.0	5-MC	0.9	19-25-26	<u>WELL GRADED SAND</u> (SW), tan, moist, medium dense to dense.	Headspace reading similar to background on OVA.		
-	02.0					-		
55.0 —						-		
-								
-	20.0					-		
60.0 —	62.0	6-MC	0.6	14-15-19	SILTY SAND (SM), brown, moist, medium dense, fine grained, micaceous.	Headspace reading 2.0 ppm on HNu, between sleeves.		
	02.0				Total Depth at 62.0 Feet.			
65.0 —						-		
-								
-	1							



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SHEET 1 OF 2

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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-ÉL TORO									
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLIN	DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, GUS PECH BRAT-22								
WATER LEVELS					START 11/13/92 FINISH	11/13/92	LOGGER K. HUCKRIEDE		
x Ĥ	1	SAMPLE		STANDARD	SOIL DESCRIPTION		COMMENTS		
DEPTH BELOW SURFACE (FT)	_		۲X	STANDARD PENETRATION TEST RESULTS	SOIL NAME USCS GROUP SYMBOL COLOR				
A CE	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)		MUISTURE CUNTENT, RELATIVE DENSITY		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS		
EPT	TE.	YPE	T)	6" -6" -6" (N)	OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		TESTS AND INSTRUMENTATION		
_∞		ΗZ	<u> </u>	****			Start drilling at 07:55		
-				·		-	Start drilling at 07:55.		
				·		4.			
					POORLY GRADED SAND WITH SILT	4	-		
			-		(SP-SM), brown, moist, fine to medium	1	· · · · · · · · · · · · · · · · · · ·		
5.0					grains, roots, micaceous:				
3.0									
						1			
						7	1		
						1	· · · · · · · · · · · · · · · · · · ·		
-	40.0					1			
10.0	10.0				POORLY GRADED SAND WITH SILT	. +	Headspace reading 1.0 ppm on OVA,		
-		1-MC	1.0	8-8-10	(SP-SM), brown, moist, loose to medium dense, fine to medium grains, micaceous.	4	between sleeves.		
	12.0					4			
	•			·		4			
15.0 —									
10.0						-			
			* .			7			
1			!			1	·		
						1			
-						+			
20.0	20.0				Similar to 1-MC, medium dense.	-	, - 		
-		2-MC	1.4	14-12-14		4	en en en en en en en en en en en en en e		
	22.0					4	4		
						4			
25.0 —							<u>.</u>		
20.0									
		. :]			
1						1			
						1	-		
-						+			
30.0	30.0		l		CLAYEY SAND (SC), brown, moist, medium	-	Headspace reading similar to		
-		3-MC	1.5	16-21-22	dense, fine grained.	4	background on OVĂ.		
	32.0	·				4	-		
		,					_		
						ļ			



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PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
	TION		• •		DRILLING CONTRACTOR BEYLIK DRILL	ING, INC., LA HABRA, CALIFORNIA				
DRILLI	NG MET	HOD AN	D EQUI	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, GUS PECH BRAT-22					
	LEVELS			T	STARTFINISH					
ĭ. ĭ.		SAMPLE	· ·	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
-										
-	40.0	:								
40.0 —	42.0	4-MC	1.3	9-10-20	<u>SILTY SAND</u> (SM), moist, medium dense, fine grained.	Headspace reading 30 ppm on OVA, between sleeves.				
_	42.0									
45.0 —										
_										
50.0 —	50.0	5-MC	1.2	8-10-20	POORLY GRADED SAND (SP), tan, dry to moist, medium dense, fine grained.	Headspace reading 2 ppm on OVA, between sleeves.				
55.0	52.0					- - -				
-						-				
60.0 —	60.0	6- M C	1.4	19-28-18	SANDY LEAN CLAY (CL), brown, moist, very stiff, fine to medium sand, <u>POORLY GRADED SAND</u> (SP), in tip of sampler.	Headspace reading > 1000 ppm on OVA, between sleeves.				
65.0	62.0				Total Depth at 62.0 Feet.					
-						-				



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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO	·
	TRACTOR BEYLIK DRILLING INC, LA HABRA, CALI	FORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS		
		LEDIZENDOUAE

ATER LEVELS					START 11-16-92 FINISH 11-16-	
£F.		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
1						Surface material consists of silty sand with gravel and roots.
		·				
-			* •			
0 +	5.0 6.5	1-MC	1.0	17-26-34	POORLY GRADED SAND WITH SILT, (SP-SM), light brown, dry, dense,	OVA = 2.2 ppm HNu = 3 ppm
-	0.5			·	cemented, with white concretions and roots.	
1			1.			
• 🕂	10.0	2-MC	1.0	13-30-42	Similar to 1-MC, more cemented.	OVA = 5 ppm HNu = 0 ppm
-	11.5	2 110				тичи — о рриг
1						
, [15.0				Similar to 2-MC, except very dense,	OVA = 1 ppm
-	17.0	3-MC	2.0	82-90-100-101	increasing percentage of fine gravel.	HNu = 0 ppm
1						
0 -	20.0	. •			_	
"	21.5	4-MC	1.5	50-85-100	Similar to 3-MC, no roots. -	OVA = - ppm HNu = 0 ppm
1						
-	25.0					• .
0 -	26.5	5-MC	1.4	56-70-150	Similar to 4-MC with an approximately 6" thick layer of WELL GRADED SAND WITH GRAVEL. (SW), light gray, dry, very dense,	OVA = - ppm HNu = 0 ppm
1					homogeneous. END OF BORING AT 26.5 FEET	
-						
0 –						
-						
4					4	



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PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO
ELEVATION DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS	

ATER	LEVELS	NULE	NUUUN	TERED	START 11-2-92 FINISH 11-2-	92 LOGGER B.HARDESTY
∌F.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
						Surface material consists of 3" thickness of asphaltic pavement.
4					· · · · · · · · · · · · · · · · · · ·	
4			* .			
<u> </u>						Encountered concrete slab or large ro at 4'.
5.0	6.5	,				
	8.0	1-MC	1.5	9-7-7	SANDY LEAN CLAY, (SC), gray to brownish gray, moist, firm, fine to coarse grained sand.	OVA = 0 ppm HNu = 0.4 ppm
0.0	10.0			0.7.15	CLAYEY SAND. (SC), brown, moist, medium	OVA = 0 ppm
-	11.5	2-MC	1.5	9-7-15	dense, fine to coarse grained sand.	HNu = 0.8 ppm
- 1						
5.0	15.0				SANDY LEAN CLAY, (SC), brown, moist,	OVA = 0 ppm
-	16.5	3-MC	1.5	8-9-13	stiff, fine to medium grained sand.	HNu = 0.4 ppm
4					· · · · · · · · · · · · · · · · · · ·	
			ē,			
0.0	20.0				CLAVEY CAND (CC) Ass point modium	OVA = 0 ppm
-{	21.5	4-MC	1.5	9-15-16	<u>CLAYEY SAND.</u> (SC), tan, moist, medium dense, fine to medium grained sand. In tip:	HNu = 0.8 ppm
		,			LEAN CLAY WITH SAND. (CL), brown, moist, fine grained sand.	
					-	
5.0	25.0	5-MC	1.5	10-15-24	CLAYEY SAND. (SC), brown, moist, medium dense, fine grained sand.	0VA = 0 ppm HNu = 0.8 ppm
1	26.5				END OF BORING AT 26.5 FEET	Time Go ppill
4						
4					· · · · · · · · · · · · · · · · · · ·	
0.0						
				·		



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SHEET 1 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA					DRILLING CONTRACTOR BEYLIK DRIL	LING,	INC., LA HABRA, CALIFORNIA		
			D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	1/5/00	A CIMIDIL		
	LEVELS				START 11/5/92 FINISH 1	1/5/92			
¥.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION		COMMENTS		
DEPTH BELOW SURFACE (FT).	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
_					Four inches of concrete, underlain by approximately 5 feet of pea gravel.		Start drilling at 08:35.		
-						4	-		
-				·		4			
-						4			
5.0 —						4			
-						1			
_	,								
İ _									
·							· <u> </u>		
40.0	10.0								
10.0 —	,			15-31-40	<u>SILT WITH SAND</u> (ML), brown, moist, hard, fine sand.	7	Sample headspace reading 0 ppm on OVA at 11.5 feet.		
_	12.0	1-MC	1.3	10 31 40		1			
-	12.10				•	1			
-						1	· · · · · · · · · · · · · · · · · · ·		
-						1	· · · · · · · · · · · · · · · · · · ·		
15.0 —							-		
-						- 1	-		
-						4			
-						1	+		
-						4			
50.0 —	20.0	2-MC	1.1	17-35-35	Similar to 1-MC, some micaceous minerals present.	4	Sample headspace reading 0 ppm on OVA at 21,5 feet.		
-	21.5					1			
-						1			
] -						1	•		
-						1			
25.0 —					•		- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		
-						1	·		
- 1						- 1			
-)				4			
-				4 ° 1	•	4	· · · · · · · · · · · · · · · · · · ·		
30.0 —	30.0				SANDY SILT (ML), brown, moist, hard.	4	Sample headspace reading 5 ppm at 31.5		
-	31.5	3-MC	1.8	16-30-30	SANDY SILT (ML), brown, moist, hard, non-plastic silt, fine sand, some micaceous sand present.	;	feet with OVA.		
_	31.3				John Projenti	4			
-						1			
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LA070022.S0.10	

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SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
ELEVA					DRILLING CONTRACTOR B	EYLIK DR	ILLING,	INC., LA HABRA, CALIFORNIA	
			D EQUIF	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAN		11/5/00	A CIMIDTO	
	LEVELS				START 11/5/92		11/5/92		
DEPTH BELOW SURFACE (FT)	1	SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	· · · · · · · · · · · · · · · · · · ·		COMMENTS	
BEL (E)	AL	₽~	Σ.	TEST RESULTS	SOIL NAME, USCS GROUP SYMBO	L, COLOR,		DEPTH OF CASING, DRILLING RATE	
FAC	INTERVAL	E AI	OVE	6" -6" -6"	SOIL NAME, USCS GROUP SYMBO MOISTURE CONTENT, RELATIVE OR CONSISTENCY, SOIL STRUCT	URE,		DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
SUR	INT	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY				
				,]		
400	40.0			:					
40.0 —		4-MC	1.5	40-57-100	Similar to 3-MC.			Sample headspace reading 4 ppm at 41.5 feet with OVA.	
_	41.5]		
							1		
					•		1		
							1		
45.0 —	,						7		
-				i '			1		
-							1		
-							1		
-	50.0				•		1	1	
50.0 —	00.0	5-MC	1.5	28-60-70	Similar to 4-MC.		1	Sample headspace reading 4 ppm at 51.5 feet with OVA.	
-	51.5	3 MC	1.5		•		1		
-							1	_	
_							1		
-							1		
55.0 —							· –		
-							1		
-							1	· · · · · · · · · · · · · · · · · · ·	
-							1		
-	60.0						1		
60.0 —	- 00.0	6-MC	1.8	70-100-100	SILTY SAND (SM), brown, moist dense, some micaceous mineral approximately 30% silt.	t, very s present.	. 1	Sample headspace reading 0 ppm at 61.5 feet with OVA.	
-	61.5	0 140			approximately 30% silt. Total Depth at 61.5 Feet.				
			*		rotal Depth at 61.5 Feet.	*	1	·	
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85.0 —								-	
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SHEET 1 OF

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING,	INC., LA HABRA, CALIFORNIA			
DRILLI	NG MET	HOD AN	D EQUIP	MENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10				
WATER	LEVELS	3			START 11/2/92 FINISH 11/2/9	2 LOGGER A. GIMURTU			
₃ `		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
-			,)	Surficial material consisting of 1.5" of bituminous pavement and approximately 6 - inches of subgrade consisting of silty gravel.	Start drilling at 09:50. - -			
-				4		-			
-					· -				
5.0 —					-	-			
-					-	-			
-					4	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			
· -									
-						·			
10.0 —	10.0				SANDY SILT (ML), brown, moist, hard, fine	Sample headspace reading 0 ppm with			
	11.5	1-MC	1.0	20-42-62	sand, clay present, distinctive remnant soil structure present.	Sample headspace reading 0 ppm with OVA from sample shoe at 11.5 feet.			
-				*	-				
-									
-									
15.0 —					-	-			
-	:	:				-			
-					-				
-						-			
-					-	-			
20.0 —	20.0				Similar to 1-MC, except reddish, very stiff,	Sample headspace reading 0 ppm with			
-	21.5	2-MC	1.5	20-20-26	more silt.	OVA from sample shoe at 21.5 feet.			
· _	21.0								
_					_	•			
_					,				
25.0 —	ļ·								
_									
						_			
_			·						
30.0 —	30.0								
30.0	31.5	3-MC	1.5	25-40-60	SILT WITH SAND (ML), brown, moist, hard, some mica, fine sand.	Sample headspace reading 0 ppm with OVA at 31.5 feet.			
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SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO								
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA								
DRILLI	NG MET	HOD AN	D EQUIF	PMENT HSA, 3-	1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10			
WATER	LEVEL				START 11/2/92 FINISH 11/2	/92 LOGGER A. GIMURTU		
₹Ē	<u> </u>	SAMPLE	:	STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
-								
-								
40.0 —	41.5	4-MC	1.6	25-70-50/3"	Similar to 3-MC, some coarse sand layers occassionally present.	Sample headspace reading 0 ppm with OVA at 41.5 feet.		
-								
45.0 —						<u>-</u>		
-								
50.0	50.0	-				-		
-	51.5	5-MC	1.6	41-70/3"	Similar to 4-MC.	Sample headspace reading 0 ppm with OVA at 51.5 feet.		
-								
55.0 —		:				Driller notes difficult drilling at 55 to 60 feet.		
		-				-		
60.0 —	60.0				Circilar to E. MC interhodded with sead	-		
	61.5	6-MC		55-80-75/3"	Similar to 5-MC, interbedded with sandy layers. Total Depth at 61.5 Feet.	Sample headspace reading 0 ppm with OVA at 61.5 feet.		
65.0				·	rotai peptir at ols reet.			
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						† -		



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SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO										
ELEVA	ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA									
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10										
WATER	LEVELS	·			START 11/3/92 FINISH 11/	/3/92 LOGGER A. GIMURTU				
3 F		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
					Surficial material consisting of 1.5 inches bituminous pavement.	Start drilling at 09:00.				
5.0	10.0	1-MC	1.1	10-15-20	SANDY SILT (ML), brown, dry, very stiff, fine sand, distinctive remnant soil structure.	Select backfill consisting of pea gravel and sand encountered from a depth of between 0.5 feet and at least 7 feet. Sample headspace reading 0 ppm with OVA at 11.5 feet.				
15.0										
20.0 —	20.0	2-MC	1.1	9-14-30	Similar to 1-MC, some micaceous minerals present.	Sample headspace reading 0 ppm at 21.5 feet with OVA.				
-	21.5									
25.0						,				
30.0 —	30.0	3-MC	1.3	25-40-60	SANDY SILT AND SILTY SAND (ML-SM), interbedded deposits of sandy silt described as brown, moist, hard, with fine sand and silty sand described as light brown, moist, very dense, well graded.	Sample headspace reading 0 ppm at 31.5 feet with OVA.				
-					brown, moist, very dense, well graded.					



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SHEET 2 OF 2

ı	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO							
1	ELEVAT	TION				DRILLING CONTRACTOR BEYLIK DRILLIN	NG, INC., LA HABRA, CALIFORNIA	
1	DRILLIN	NG METH	HOD AND	EQUIP	MENT HSA, 3-1	/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	A CIMIDAN	
-	MATER	LEVELS		<u></u>		START 11/3/92 FINISH 11/3		
	≆Ē.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS	
	DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
	40.0 —	40.0	4-MC	1.5	12-40-50	<u>SANDY SILT</u> (ML), reddish brown, moist, hard, fine sand.	Sample headspace reading 0 ppm at 41.5 feet with OVA.	
	45.0	41.5	•					
		50.0						
	50.0 — _	51.5	5-MC	1.4	9-13-20	Similar to 4-MC, very stiff.	Sample headspace reading 0 ppm at 51.5 feet with OVA.	
	_ 	01.0					-	
	55.0 —							
	-	60.0					- - -	
.	60.0 — -	61.5	6-MC	2.0	25-57-79	Similar to 5-MC, hard.	Sample headspace reading 0 ppm at 61.5 feet with OVA.	
	65.0 —					Total Depth at 61.5 Feet.	-	
	- -							



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SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10									
DRILLI	NG MET	NA GOH	D EQUIF	MENT HSA, 3-					
	LEVELS				START 11/4/92 FINISH 11/4/	LOGGER B. ORR			
₹Ē.	ļ	SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
						Start drilling at 08:45. Asphalt surface.			
_						Aspliant surface.			
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_									
5.0 —	 				<u> </u>				
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-						-			
-						-			
-						-			
10.0 —	10.0			20 25 30	LEAN CLAY (CL), brown, some white streaks, dry, hard, trace fine sand.	OVA=0 ppm -			
-	11.5	1-MC	0.8	20-25-39	streaks, dry, hard, trace fine sand.	-			
-	ļ					-			
-						-			
-						-			
15.0 —						-			
-						1			
20.0 —	20.0				CH TV CLAV (CLAM) bears weigh hand				
-	22.0	2-MC	1.6	23-34-44-45	SILTY CLAY (CL/ML), brown, moist, hard, micaceous.	OVA=0 ppm HNu=1 ppm (at sleeves)			
]			
25.0 —				÷	 				
				·					
	`					_			
_						<u> </u>			
-						-			
30.0 —	30.0				Similar to 2-MC.	HNu=1 ppm			
-	32.0	3-MC	1.8	17-34-37-44		HNu=1 ppm OVA=0 ppm			
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PROJECT NAVY CLEAN RCRA FACILIT	Y ASSESSMENT	LOCATION MCAS-EL TORO				
ELEVATION	DRILLING CONTRACTOR	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA				
DRILLING METHOD AND EQUIPMENT H	SA, 3-1/4" ID, 6-1/2" OD, INGERSOL-RA	AND TH-10				
WATER LEVELS	START 11/4/92	EINTSH 11/4/92	LOGGER B. ORR			

	LEVELS				1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10 START 11/4/92 FINISH 11/4/9	LOGGER B. ORR
æF.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
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_						
_	·					
.0 —	40.0	4 115		34-75-100	<u>SILTY CLAY</u> (CL/ML), brown, moist, hard, some fine to medium sand.	HNu=1 ppm OVA=0.4 ppm
-	41.5	4-MC	1.4	34 73 100	some tine to medium sand.	OVA=0.4 ppm
-						
-						
0.						
.0	,		·		· .	
-				·		
_						Driller notes hard drilling.
_					• • • • • • • • • • • • • • • • • • •	Driver Hotes hard driving.
.0 —	50.0				SILTY SAND TO SANDY SILT (SM/ML),	HNu=1.4 ppm.
-		5- M C	2.0	24-120	brown, moist, very dense to hard, fine to medium sand.	OVA=0 ppm
-	52.0				-	1
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.0 —					-	·
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_						
_				·		
.0 —	60.0		,		SILTY CLAY (CL/ML), brown with white	HNu=1 ppm
_		6-MC	1.5	84-90/5"	streaks, dry to moist, hard.	OVA=0 ppm
_	62.0				Total Depth at 62.0 Feet.	
_		. ;				
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.0 —					<u>-</u>	
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PROJECT NUMBER	BORING NUMBER					
LA070022.RV	291B-1	SHEET	1	OF	1	

PROJECT NAVY CLEAN RCRA FACILITY ASSES	SMENT	LOCATION MCAS-EL TORO			
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA			
DRILLING METHOD AND EQUIPMENT HOLLOW S					
WATER LEVELS	START 10-26-92	FINISH 10-26-92	LOGGER J.FRIZENSCHAF		

) EQUIF	MENT HOLLOW	31EM AUDEN3	-26-92 LOGGER J.FRIZENSCHAF
	LEVELS			·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·	START 10-26-92 FINISH 10	
āĒ.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (F.T)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
_						Surface material consists of a 1-2" thic asphalt layer.
-	1					
_						-
-						
5.0 —	5.0			20.5.10	SILT, (ML), dark brown, moist, stiff,	OVA = 5 ppm
-	6.5	1-MC	1.5	20-5-16	homogeneous, micaceous minerals, fairly plastic.	HNu = 4 ppm
_						1
	10.0			·		
IO.O — —		2-MC	2.0	10-18-31-40	SILT, (ML), light brown, moist, hard, homogeneous with occasional 1-2mm diameter quartz particles.	OVA = 1.6 ppm HNu = 2 ppm
	12.0		,		didirector quartz particles.	4
, , -						-
-	45.0					1
5.0 —	15.0	3-MC	1.0	7-10-12-22	SILT, (ML), light brown, moist, very stiff, homogeneous with white calcerous veins, fairly plastic.	OVA = 0.6 ppm HNu = 1 ppm
_	17.0				rainy plastic.	
_						
20.0 —	20.0					4
-	21.5	4-MC	1.5	14-28-40	<u>SILT</u> , (ML), light brown, moist, hard, homogeneous with calcerous veins, fairly plastic.	OVA = 1.8 ppm HNu = 0.8 ppm
-						
_						1
-	25.0					1
5.0 —	26.5	5-MC		18-48-50+	SILTY SAND, (SM), light brown, moist, very dense, fine grained sand, with trace to	OVA = 0.6 ppm HNu = 0.8 ppm
-	20.0				little approximately 1mm diameter quartz particles, and approximately 2"-2.5"	/-
_					diameter subrounded gravel particles. END OF BORING AT 26.5 FEET	-
0.0						4
_						
						4
_						



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SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVATION DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA DRILLING METHOD AND EQUIPMENT HOLLOW STEM AUGERS									
DRILLI	NG MET	HOD AN	D EQUI	PMENT HOLLOW	STEM AUGERS				
WATER	LEVELS	3			START 10-27-92 FINISH 10-27	7-92 LOGGER J.FRIZENSCHAF			
ĭ.	·	SAMPLE	<u> </u>	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	TEST TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
-		, -			-	Surface material consists of light gray, fine grained sandy material with gravel - and rock chips over light gray, fine grained silty sand.			
] _	. '				<u> </u>	-			
		'			•	-			
5.0	5.0				<u> </u>	_			
-	6.5	1-MC	1.5	8-8-25	<u>SILTY SAND</u> , (SM), light brown, dry, medium dense, homogeneous. In tip:	OVA = 0.1 ppm			
-					SANDY SILT, (ML), light brown, dry, very stiff, homogeneous with white streaks.				
1	ļ.	'				<u> </u>			
-	10.0				·-				
10.0 —	11.5	2-MC	1.5	9-18-29	SANDY SILT, (ML), light brown, dry, very stiff, homogeneous with white streaks.	OVA = 0 ppm HNu = 30 ppm			
<u> </u>	11.5		<u> </u>						
					<u>.</u>				
		• '							
] 7	15.0	1				<u> </u>			
15.0 —	16.5	3-MC	1.5	14-24-40	15.0' to 16.0': <u>SANDY SILT</u> (ML), light brown, moist, very stiff to hard, homogeneous.	OVA = 4 ppm HNu = 0 ppm			
					16.0' to 16.5': <u>POORLY GRADED SAND</u> , (SP), light brown to gray, dry, dense, homogeneous.				
	20.0				In fip: <u>STLTY CLAY</u> , (CL-ML), dark brown, moist, hard, homogeneous.				
20.0	20.0		 	10-13-28	SILTY CLAY, (CL/ML), dark brown, moist,	OVA = 4.2 ppm			
-	21.5	4-MC	1.5	10-13-20	very stiff, homogeneous.	HNu = 0 ppm			
	1	!							
7	1					<u> </u>			
25.0 —	25.0			,	- 	_			
-	26.5	5-MC	1.5	12-20-27	25.0' to 26.0': SILTY CLAY, (CL/ML), dark brown, moist, very stiff, homogeneous.	OVA = 0 ppm HNu = 60 ppm _			
_			-		26.0' to 26.5': WELL GRADED SAND. (SW), light gray, dry, medium dense to dense, homogeneous.	-			
		'		1	END OF BORING AT 26.5 FEET				
30.0 -		!			<u> </u>				
		!]	·				
				1. 1					
		"	1						
7	, !								



PROJECT	NUMBER
1.407002	D RV

BORING NUMBER

2988-1

SHEET 1 OF 1

PROJE	ROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO						
ELEVA	TION _		·		DRILLING CONTRACTOR BEYLIK DRILLING		
DRILLI	NG MET	HOD AN	D EQUI	PMENT HOLLOW	STEM AUGERS		
WATER	LEVEL	S			START 10-20-92 FINISH 10-20	0-92 LOGGER H.UNDERWOOD	
T ₂ F	SAMPLE STANDARD		STANDARD	SOIL DESCRIPTION	COMMENTS		
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
-						Surface material consists of approximately 0.4' thickness of asphalting pavement.	
						7	
-	5.0			ļ		1.	
5.0 —	7.0	1-MC	1.9	10-12-12-18	POORLY GRADED SAND WITH SILT. (SP-SM), brown, moist, medium dense, fine grained sand, micaceous crystals.	OVA = 1.5 ppm HNu = 0 ppm	
					7		
_					,	1	
-	10.0				•	1 .	
10.0	11.5	2-MC	0.7	4-14-18	SILTY SAND, (SM), brown, moist, dense, fine grained sand, trace micaceous crystals, trace light brown stringers.	OVA = 0 ppm HNu = 0 ppm	
	-						
15.0 —	15.0						
15.0 —	16.5	3-MC	1.2	15-26-50+	LEAN CLAY WITH SAND/FAT CLAY WITH SAND. (CL/CH), brown, dry to moist, hard, fine to medium grained sand, trace micaceous crystals, light brown crystals.	OVA = 1 ppm HNu = 2 ppm	
20.0 —	20.0						
20.0 —	21.5	4-MC	1.0	17-58-50+	SILTY SAND, (SM), brown, moist, very dense, fine to medium grained sand, silt acts as cementing agent.	OVA = 3.5 ppm HNu = 0 ppm	
7							
	,					· ·	
	25.0				-		
25.0	26.5	5-MC	1.0	36-40-50	SILTY SAND, (SM), brown, moist, very dense, fine grained sand, micaceous crystals.	OVA = 3 ppm HNu = 0 ppm	
-					END OF BORING AT 26.5 FEET		
] -							
					· -		
30.0 —					·		
00.0					•	_	
					in the second second second second second second second second second second second second second second second		



PROJECT NUMBER

LA070022.RV

BORING NUMBER

300B-1

SHEET 1 OF 1

SOIL BORING LOG

PROJECT NAVY CLEAN RCRA FACILITY ASSESSME	NT	LOCATION MCAS-EL TORO	
ELEVATION	_ DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS		

WATER LEVELS NOT ENCOUNTERED START 11-23-92 FINISH 11-23-92 LOGGER C.POLITO STANDARD PENETRATION TEST RESULTS SAMPLE SOIL DESCRIPTION COMMENTS 9F RECOVERY (FT) DEPTH BEL SURFACE (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, INTERVAL (FT) TYPE AND NUMBER DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION 6" -6" -6" -6" MINERALOGY Surface material consists of light brown, silty material. 5.0 5.0 SANDY SILT WITH GRAVEL, (ML), brown, moist, very stiff, fine grained sand, with approximately 30% 1/2" minus gravel. OVA = 36 ppm HNu = 16 ppm 12-12-12-14 1-MC 1.0 7.0 OVA = 100 ppm HNu = 60 ppmSILTY SAND, (SM), light brown, dry, dense, 16-21-19-35 fine grained sand, micaceous. 1a-MC 1.5 9.0 10.0 10.0 OVA = 100 ppm HNu = 35 ppm Similar to 1a-MC. 14-14-15-17 2-MC 1.7 12.0 15.0 15.0 Similar to 2-MC. OVA = 12 ppm11-17-30-37 HNu = 16 ppm3-MC 1.7 17.0 20.0 20.0 0VA = 60 ppm SILTY SAND WITH GRAVEL, (SM), brown, dry, dense, micaceous, well graded sand, approximately 10% 1/2" minus gravel. HNu = 60 ppm6-80-14-35 4-MC 1.7 22.0 25.0 25.0 Similar to 4-MC, very dense. OVA = 60 ppm5-6-33-70 HNu = 50 ppm5-MC 1.8 27.0 END OF BORING AT 27.0 FEET 30.0



BORING NUMBER

300B-2

SHEET 1 OF 1

PROJECT NAVY CLEAN RCRA FACIL	ITY ASSESSMENT	LOCATION_MCAS-EL TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING INC, LA HABRA, CALIFORNIA	A
DRILLING METHOD AND EQUIPMENT			

DRILLI		HOD AN	D EQUII	MENT HOLLOW	STEM AUGERS	·
		NOT E			START 11-20-92 FINISH 11-20-	-92 LOGGER C.POLITO
≆£.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
	AĽ	9~	:RY	STANDARD PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR,	DEPTH OF CASING, DRILLING RATE
DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-			·		_	
-				,		
_						
5.0 —	5.0					
3.0 -	7.0	1-MC	1.0	7-8-7-12	SILTY SAND, (SM), light brown with orange staining, moist, medium dense, fine grained sand, micaceous, some gravel and glass.	OVA = 0 ppm HNu = 1 ppm
-	9.0	1a-MC	1.5	16-12-9-13	Similar to 1-MC.	OVA = 0 ppm HNu = 1 ppm
	10.0				• • • • • • • • • • • • • • • • • • •	
10.0 —	12.0	2- M C	1.5	13-17-40-35	Similar to 1a-MC.	OVA = 0 ppm HNu = 1 ppm
-	12.0					
-		, 			i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co	
15.0 — -	15.0	3-MC	2.0	15-19-24-60	Similar to 2-MC, some coarse sand.	OVA = 2.5 ppm HNu = 1 ppm
-	17.0					
-						
20.0 —	20.0	4-MC	0.5	45-100/4"	WELL GRADED SAND WITH GRAVEL. (SW),	OVA = 10 ppm -
_	22.0		0.0	•	brown, moist, very dense, with approximately 20% 2" minus gravel.	HNu = 1 ppm
_	23.5	4a-MC	1.5	35-52-70/6"	Similar to 4-MC.	OVA = 10 ppm HNu = 1 ppm
-	25.0					-
25.0 —	26.3	5-MC		25-60-75/3"	WELL GRADED SAND, (SW), light brown, moist, very dense.	OVA = 0 ppm HNu = 1 ppm
4					END OF BORING AT 26.3 FEET	_
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30.0 —						-
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12.0

15.0

17.0

20.0

22.0

26.0

27.1

15.0

20.0

25.0

30.0

PROJECT NUMBER LA070022.RV BORING NUMBER 300B-3

SHEET 1 OF 1

SOIL BORING LOG

OVA ≈ 0 ppm HNu = 0 ppm

OVA = 0 ppm HNu = 0 ppm

OVA ≈ 0 ppm HNu = 0 ppm

						. JOIL DOM.	INO LOO
PROJE	CT NAV	Y CLEA	N RCRA	FACILITY ASS	ESSMENT	LOCATION MCA	AS-EL TORO
ELEVATION					DRILLING CONTRACTOR		INC, LA HABRA, CALIFORNIA
		HOD AN	ם בטווז	PMENT HOLLOW		`	
				TERED	START 11-19-92	FINISH 11-20-	-92 LOGGER C.POLITO
xF		SAMPLE	:	STANDARD	SOIL DESCRIPT		COMMENTS
DEPTH BELOW SURFACE (FT)	VAL	AND R.	ERY	PENETRATION TEST RESULTS	SOIL NAME, USCS GROUP SYN MOISTURE CONTENT, RELATI		DEPTH OF CASING, DRILLING RATE
DEPTH	INTERV.	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" -6"	OR CONSISTENCY, SOIL STR MINERALOGY		DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-	1					-	
-	1					-	
-						-	
Ś.0 —	5.0	 	· · ·				
_		I-MC	1.7	17-16-12-12	SANDY SILT, (ML), brown, m micaceous, fine grained san		OVA = 15 ppm HNu = 5 ppm
	7.0		""				
		la-MC	1.7	15-16-26-35	SILTY SAND, (SM), brown, micaceous, fine grained san	noist, dense,	OVA = 20 ppm HNu = 10 ppm
_	9.0			·	· · · · · · · · · · · · · · · · · · ·		
	10.0						
10.0 —		2~MC	1.7	4-6-8-16	Similar to 1a-MC, medium der	ise.	OVA ≈ Oppm HNu = Oppm

Similar to 2-MC, very dense.

WELL GRADED SAND WITH SILT, (SW-SM),

brown, moist, very dense, micaceous, some 1/4" minus gravel.

WELL GRADED SAND WITH GRAVEL. (SW), brown, moist, very dense, with approximately 20% 1" minus gravel.

END OF BORING AT 27.1 FEET

13-26-24-60

16-27-42-50

38-100-20/1"

2.0

2.0

1.5

3-MC

4-MC

5-MC



PROJECT NUMBER	BORING NUMBER		 	
LA070022.RV	300B-4	CHEET	٥٢	

SOIL BORING LOG

PROJECT NAVY CLEAN RCRA FACILITY ASSESSME	ENT LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING INC, LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HOLLOW STEM	AUGERS

WATER LEVELS NOT ENCOUNTERED START 11-19-92 FINISH 11-19-92 LOGGER C.POLITO STANDARD PENETRATION TEST RESULTS SAMPLE SOIL DESCRIPTION COMMENTS 36 RECOVERY (FT) DEPTH BEL SURFACE INTERVAL (FT) TYPE AND NUMBER SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION 6" -6" -6" -6" MINERALOGY 5.0 5.0 SILTY SAND, (SM), light brown, dry, dense, OVA = 10 ppm22-30-32-32 fine grained sand, micaceous. 1-MC 1.8 HNu = 0 ppm7.0 10.0 10.0 Similar to 1 MC. mqq 0 = AV08-14-15-20 2-MC 1.7 HNu = 0 ppm12.0 15.0 15.0 POORLY GRADED SAND WITH SILT, (SP-SM), light brown, moist, dense, fine to medium grained sand, trace mica. OVA = 0 ppm HNu = 0 ppm 9-20-28-35 3-MC 1.7 17.0 20.0 20.0 Similar to 3-MC. OVA = 1.3 ppm10-20-28-70 4-MC HNu = 0 ppm 22.0 25.0 25.0 Similar to 4-MC, except with approximately OVA = 0 ppm HNu = 0.5 ppm18-48-70/4.5 5-MC 5% 1/4" minus gravel. 26.4 END OF BORING AT 26.4 FEET 30.0



BORING NUMBER

301A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSES	SSMENT	LOCATION MCAS-EL TORO		
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., L	A HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 4-1/	/4" ID, 8" OD, FAILING F-10			
WATER LEVELS NOT ENCOUNTERED	START 11/21/92	FINISH 11/21/92	LOGGER B. HARDESTY	

			NOT E			START 11/21/92 FINISH 11/21/92 LOGGER B. HARDESTY
3	=		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION COMMENTS
DEPTH BELOW	IF ACE (F	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
8	S	N.	¥ N N	RE FT	(N)	
	-					Start drilling at 07:30.
	-					
	-					
	-	-				
5.0						
	-					
	_					
	-	•				
10.0) -	10.0	·			SILTY SAND (SM), tan, moist, dense, well HNu=1.0 ppm OVA=6.0 ppm
	-	12.0	1-MC	1.7	58-34-40-41	graded, trace graver.
	-	12.10				
			•	,		
15.0	· —					
	_					
	_				14	4
Ì	-					
		20.0			·	
20.0	, –		2-MC	1.5	22-26-32-39	SANDY SILTY CLAY (CL/ML), tan, moist, hard, fine sand. HNu=1.2 ppm OVA=1.2 ppm
	_	22.0	2 710			4
	_					
	-					+
25.0) —					
	-					
	-					
	-					
30.0) —	30.0				30-31.5' <u>CLAYEY SAND</u> (SC), tan, moist, HNu=0.5 ppm
-	-	25.5	3-MC	1.8	11-20-24-30	medium dense, fine to medium grains. OVA=1.2 ppm
	_	32.0				31.5-32' <u>SANDY LEAN CLAY</u> (CL), brown, moist, fine sand.
	-					



ROJECT NUMBER	BORING NUMBER			
A070022.S0.10	301A-1	CUEC	-	^

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	NT	LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 4-1/4" ID		
WATER LEVELS NOT ENCOUNTERED	-START 11/21/92	FINISH 11/21/92 LOGGER B. HARDESTY

	,			TERED	START 11/21/92 FINISH 11/21/9	LOGGER B. HARDESTY
≆Ê		SAMPLE		STANDARD	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
<u> </u>	<u> </u>	⊢Z	<u>~</u> "	1.17		
-						
-		*				
-						
-	40.0					
10.0 —	40.0		····		40-41' <u>SANDY LEAN CLAY</u> (CL), brown, moist, very stiff, fine sand.	HNu=0.2 ppm OVA=0.8 ppm
-	42.0	4-MC	1.8	18-19-27-34	moist, very stirr, tine sand.	OVA=0.8 ppm
-	42.0				41-42' <u>LEAN CLAY WITH SAND</u> (CL), brown, moist, hard, coarse to fine sand.	
-					Crown, moist, hard, coalse to line said.	
-						•
45.0 —				·		
-					· -	
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-					· · · · · · · · · · · · · · · · · · ·	
-	50.0				1	
50.0 —		F 110	4.7	15-21-30-48	<u>CLAYEY SAND</u> (SC), tan, moist, dense, well graded, trace caliche.	HNu=1.0 ppm OVA=1.2 ppm
	52.0	5-MC	1.7	10 21 30 40	1	
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_						
55.0 —						•
_						
-						
-						
_						
60.0 —	60.0				60-61' CLAYEY SAND (SC), brown, moist,	HNu=1.0 ppm
-	62.0	6-MC	1.5	17-26-30-42	dense, medium to fine grained. 61-62' POORLY GRADED SAND WITH CLAY (SP-SC), tan, moist, dense, fine grained.	OVA=0.2 ppm
_					Total Depth at 62.0 Feet.	
85.O —						
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_						e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de



BORING NUMBER

301A-2

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILIT	Y ASSESSMENT	LOCATION MCAS-EL TORO		
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA HABE	RA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT +	ISA, 4-1/4" ID, 8" OD, FAILING F-10			
NOT ENGOUNTEDED	4101100	11/01/00	D HADDERTÝ	

IATER	LEVELS	NOT E	NUOUN		START 11/21/92 FINISH 11/21/9	2 LOGGER B. HARDESTÝ		
SAMPLE STANDARD PENETRATION TEST SO				STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS		
SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSITENCY, SOIL STRUCTURE,	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION		
SE	N N	T Y E	REC (F)	(N)	MINERALOGY			
						Start drilling at 13:00.		
_								
				,				
_								
5.0 —								
-	-							
-								
-								
-								
10.0 —	10.0				WELL GRADED SAND WITH CLAY (SW-SC),	HNu=1.0 ppm		
	1,5	1-MC	2.0	34-69-27	brown, moist, very dense, trace coarse to fine gravel.	OVA=0 ppm		
-	12.0	:			_			
-	1				-			
-								
15.0 —								
-								
-					1			
-					1			
- 	20.0							
		2-MC	0.5	21-27-30-46	Similar to 1-MC, dense.	HNu=0 ppm OVA=0 ppm		
_	22.0	2 1910	0.0					
		-						
-								
25.0 						ı		
-	-							
-	-							
	1							
-								
30.0 —	30.0				CLAYEY SAND WITH GRAVEL (SC), brown,	HNu=3.0 ppm		
-	1 22 2	3-MC	0.7	36-75-80-116	moist, very dense, well graded, coarse to fine gravel.	OVA=8.0 ppm		
	32.0				· · · · · · · · · · · · · · · · · · ·			
-	1				-			
-	1			*	-			



BORING NUMBER

301A-2

SHEET 2 OF 2

	TION				DRILLING CONTRACTO	OR DEVELOP BRITELING.		
		HOD ANI			1/4" ID, 8" OD, FAILING F-10 START 11/21/92	FINISH 11/21/9	2	ER B. HARDESTY
-								
¥E.		SAMPLE		STANDARD PENETRATION	SOIL DESCRIP	11UN	(COMMENTS
SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SY MOISTURE CONTENT, RELAT OR CONSISTENCY, SOIL STR MINERALOGY	TIVE DENSITY	DRILLING FLUI	ING, DRILLING RATE D LOSS STRUMENTATION
_								
_								
						7		•
-								
-						4		•
10.0	40.0		: 		LEAN CLAY WITH SAND (C	1) brown moist	HNu=0 ppm	
		4-MC	1.8	10-19-29-24	hard, fine sand.		OVA=1.0 ppm	
	42.0							
_						1		
· -						. 1		
-			•		•	-		
5.0 —								
_								
			٠			1		
. · -				* -		1	•	
-				-		4		
-						4		
io.o —	50.0				CLAYEY SAND (SC), brown	moist dense	HNu=Oppm	
: _	,	5-MC	1.1	13-27-37-79	to very dense, fine to coar	rse grained.	OVA=O ppm	
	52.0	2 140	1.1			7		
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-						4		
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5.0 —								
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	,					.]		÷
-						1		
_						1		
-						· · · 4		
).0 —	60.0		-		LEAN CLAY WITH SAND (CI	I) brown moiet	HNu=10 aa=	
		6-MC	1.0	7-17-35-51	hard, fine sand.	L/, Drown, moist,	HNu=1.0 ppm OVA=0.4 ppm	
	62.0	UMU	1.0		•	· · · · · .]		
-					Total Depth at 62.0 Feet.			
+						4		
4								
5.0 —								



BORING NUMBER

302A-1

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILI	TY ASSESSMENT	LOCATION MCAS-EL	TORO	
ELEVATION	DRILLING CONTRACTOR	BEYLIK DRILLING, INC.,	LA HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT	HSA, 3-1/4" ID, 6-1/2" OD, INGERSOL-F	RAND TH-10		· .

IATER	LEVEL			· · · · · · · · · · · · · · · · · · ·	START 11/21/92 FINISH 11/21/92 LOGGER C. POLITO	
¥£ T±	<u> </u>	SAMPLE	r	STANDARD PENETRATION TEST	SOIL DESCRIPTION COMMENTS	
DEPTH BELOW SURFACE (FT)	AL	9	7	TEST RESULTS	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTIRE CONTENT RELATIVE DENSITY DEPTH OF CASING, DRILLING RATI	F
FAC	INTERVAL	E AI BER	OVE	6" -6" -6"	OR CONSISTENCY, SOIL STRUCTURE DRILLING FLUID LOSS	-
믮	NI F	TYPE AND NUMBER	RECOVERY (FT)	(N)	MINERALOGY TESTS AND INSTRUMENTATION	
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5.0						
-						
`-	1.					
-						
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10.0 —	10.0				SANDY SILT (ML), brown, moist, hard, fine HNu=200 ppm	
-		1-MC	1.1	18-40-70/6"	sand. OVA=0 ppm	
-	12.0					
-						
15.0 —						
-						
-						
-						
-						
20.0 —	20.0				Similar to 1-MC. HNu=160 ppm	
_		2-MC	1.7	18-40-42-42	OVA=O ppm	
_	22.0					
_						
=						
25.0 —						
٠ -						
-						
-						
· -						
30.0 —	30.0				STI TV SAND (SM) brown moist warv	
		3-мс	1.2	40-75/6"	SILTY SAND (SM), brown, moist, very dense, fine sand, trace medium sand, trace OVA≃O ppm	
	32.0	- 10			mica.	
_						



PROJECT NUMBER

LA070022.S0.10

BORING NUMBER

302A-1

SHEET 2 OF 2

PROJEC	PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT LOCATION MCAS-EL TORO									
ELEVA					DRILLING CONTRACTOR BEYLIK DRILLING	G, INC., LA HABRA, CALIFORNIA				
					1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10					
	LEVEL		ENCOUN		START 11/21/92 FINISH 11/21/	· · · · · · · · · · · · · · · · · · ·				
₹Ĺ		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS				
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION				
_						<u>.</u>				
				1						
-						-				
-						-				
40.0 —	40.0				LEAN CLAY (CL), brown, moist, hard, trace	HNu=170 ppm -				
	42.0	4-MC	2.0	17-41-55-85	mica.	OVA=0 ppm				
-	42.0					-				
-			:							
45.0 —					· · · · · · · · · · · · · · · · · · ·	-				
			<u>.</u>							
						<u> </u>				
50.0 —	50.0				SANDY SILT (ML), brown, moist, hard, fine	11Nu=12 ppm				
		5-MC	2.0	33-55-70/3"	sand, trace mica.	HNu=12 ppm OVA=1 ppm				
. _	52.0				, · · · · · · · · · · · · · · · · · · ·	<u> </u>				
-						_				
						<u> </u>				
55.0						<u> </u>				
-					· -	-				
			,		en en en en en en en en en en en en en e	. *				
					-	-				
	60.0				-	-				
60.0		6 44 6	1.5	38-55-75/3"	Similar to 5-MC.	HNu=50 ppm OVA=0 ppm				
1]	62.0	6-MC	1.5	33 73,0	·					
					Total Depth at 62.0 Feet.	·				
65.0 —						_				
					<u> </u>					
] -	.				-					
					·					
	ł									



PROJECT NUMBER	BORING NUMBER
LA070022.S0.10	302A-2

SOIL BORING LOG

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSME	NT LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID	0, 6-1/2" OD, INGERSOL-RAND TH-10

AIGN	LE VELS	1101	NCOUN		START 11/21/92 FINISH 11/21/9		
ξĹ		SAMPLE		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	COMMENTS	
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION	
i.0 —					-		
- - - 0.	10.0	1-MC	1.0	30-40-70	SANDY SILT (ML), brown, moist, hard, fine sand.	HNu=0 ppm OVA=1 ppm	
i.o —	12.0						
- - 0.0 —	20.0						
7.0 - -	22.0	2-MC		50-70-73	Similar to 1—MC.	HNu=16 ppm OVA=0 ppm	
- 5.0 —							
.0 —	30.0				SANDY SILI (ML), brown, moist, hard, micaceous, fine sand (approximately	HNu=0 ppm	
-	32.0	3-MC	1.5	50-80-60/1"	micaceous, fine sand (approximately 40-50%).	OVA=0 ppm	



BORING NUMBER

302A-2

SHEET 2 OF 2

PROJEC	T NAV	Y CLEA	N RCRA		ESSMENT LOCATION MCA	
					DRILLING CONTRACTOR BEYLIK DRILLING	, INC., LA HABRA, CALIFORNIA
					1/4" ID, 6-1/2" OD, INGERSOL-RAND TH-10	· · · · · · · · · · · · · · · · · · ·
WATER	LEVELS	NOT I	ENCOUN		START 11/21/92 FINISH 11/21/9	LOGGER C. POLITO
3F		SAMPLE	<u> </u>	STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
40.0 —	40.0				LEAN CLAY (CL), brown, moist, hard.	HNu=190 ppm —
	42.0	4-MC	2.0	25-50-64-85	CEAN CLAT (CE), Drown, moist, haid.	OVA=0 ppm
-						
45.0 —						
_						•
50.0 —	50.0 52.0	5-MC	1.5	50-100/6"	SILTY SAND (SM), light brown, dry, very dense, fine sand, micaceous.	HNu=14 ppm OVA=0 ppm
_	1					
55.0 —						
-	60.0					<u>.</u>
80.0 —	62.0	6-MC	1.5	40~75-75/3"	SANDY SILT (ML), brown, moist, hard, fine sand.	HNu=60 ppm OVA=0 ppm
_					Total Depth at 62.0 Feet.	
85.0 —						- -



PROJECT NUMBER BORING NUMBER 303A-1 LA070022.S0.10

SHEET 1 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSMENT	LOCATION MCAS-EL TORO
ELEVATION	DRILLING CONTRACTOR BEYLIK DRILLING, INC., LA HABRA, CALIFORNIA
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID,	6-1/2" OD, INGERSOL-RAND TH-10
	N/03/03

WATER		NOT E	ENCOUN		START 11/23/92 FINISH 11/24/	/92 LOGGER C. POLITO
≆ Ĥ		SAMPLE		STANDARD PENETRATION	SOIL DESCRIPTION	COMMENTS
DEPTH BELOW SURFACE (FT)	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	PENETRATION TEST RESULTS 6" -6" -6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH CF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION
-					- -	
5.0 —					1	
10.0 —	10.0	1-MC	1.5	13-20-20-21	SANDY SILT (ML), brown, moist, very stiff fine sand.	HNu=0 ppm
-	14.0	1A-MC	1.5	14-20-28-35	Similar to 1–MC, but hard. - -	HNu=0 ppm OVA=0.6 ppm
15.0 —			٠,		· . · . · . · . · . · . · . · . · . · .	<u> </u>
20.0 —	20.0				SILTY SAND WITH GRAVEL (SM), light	
_	22.0	2-MC 2A-MC	2.0	9-13-40-61	brown, dry, very dense, fine sand, gravel (20%) to 1 inch. SILTY SAND (SM), light brown, dry, dense, fine sand, trace mica.	HNu=0 ppm OVA=0 ppm
25.0 —	24.0					
30.0	30.0					
30.0	32.0	3-MC	2.0	16-30-52-60	Similar to 2A-MC, very dense.	HNu=0 ppm
			-	7.		-



BORING NUMBER

303A-1

SHEET 2 OF 2

PROJECT NAVY CLEAN RCRA FACILITY ASSESSME	NT	LOCATION MCAS-EL TO	R0	
ELEVATION	_DRILLING CONTRACTOR	BEYLIK DRILLING, INC., LA	HABRA, CALIFORNIA	
DRILLING METHOD AND EQUIPMENT HSA, 3-1/4" ID	, 6-1/2" OD, INGERSOL-	RAND TH-10	· · · · · · · · · · · · · · · · · · ·	
WATER LEVELS NOT ENCOUNTERED	artar 11/23/92	11/24/92	LOGGES C POLITO	

WATER	LEVELS	NOT E	NCOUN	TERED	START 11/23/92 FINISH 11/24/	LOGGER C. POLITO			
∌£	SAMPLE STANDARD PENETRATION TEST RESULTS				SOIL DESCRIPTION	COMMENTS			
DEPTH BELOW INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INTERVAL INT			RECOVERY (FT)	6" -6" -6"	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE DRILLING FLUID LOSS TESTS AND INSTRUMENTATION			
_									
40.0	40.0	4-MC	1.8	8-15-37-70/5'	LEAN CLAY (CL), brown, moist, hard, trace mica, trace to little fine sand.	HNu=0 ppm OVA=1 ppm			
45.0	42.0								
 50.0 —	50.0				-				
-	52.0	5-MC	2.0	15-30-46 -70/4"	SANDY SILT (ML), brown, moist, hard, fine sand.	HNu=5 ppm OVA=5 ppm			
55.0 — -									
0.06	60.0	6-MC	2.0	35-70-100/5"	SILTY SAND (SM), light brown, dry, very dense, fine grained, trace mica.	HNu=1 ppm OVA=1 ppm			
35.0 —	62.0				Total Depth at 62.0 Feet.				
-				3					

Appendix D EVALUATION OF BACKGROUND METALS

TO:

Tim Smith/SCO

FROM:

Bruce Peterson/SEA

DATE:

July 14, 1993

Critical values for comparison of metals with background

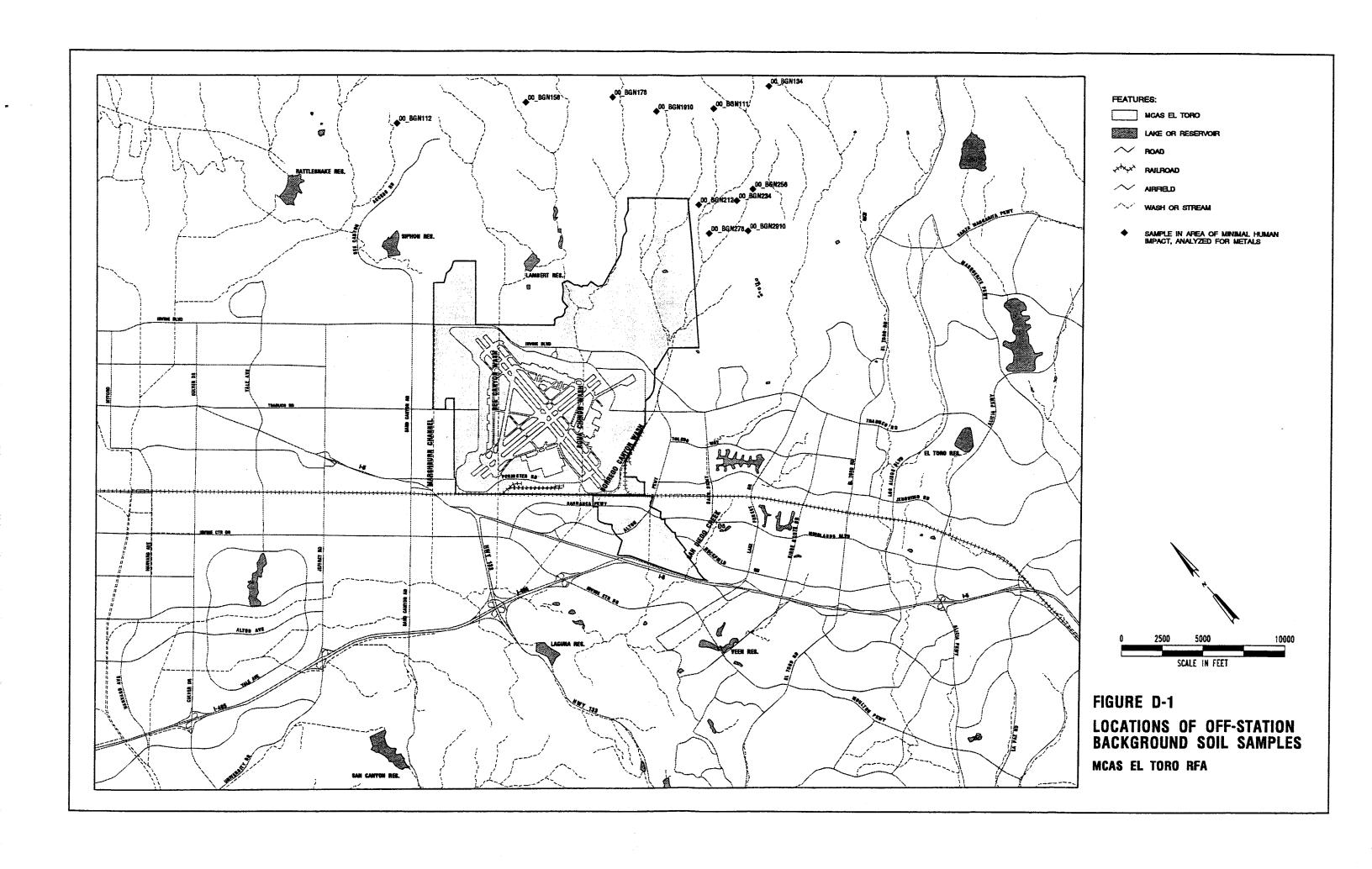
PROJECT: SCO70022.RV

Background samples were collected to form a basis for comparison of onsite sample concentrations of metallic elements with the naturally occurring levels. The proposed method of comparison is to compare the concentration of each metal from a sample analysis with a criterion value representing concentrations likely to be found in the background samples. If none of the metal concentrations from a sample exceed the criterion value for that metal, then the sample is accepted as being similar to one collected from background. If one or more of the metal concentrations in the sample exceed the criteria values then the sample is suspected of being contaminated with those compounds.

An estimate of the criterion values was estimated from 11 background sample borings. The boring locations are shown in Figure D-1. A comparison was made between surface and subsurface (2-foot) concentrations from the samples. The surface and subsurface concentrations were found to be highly correlated for most metals. Because of the high correlation between depths, the two values were averaged to represent the concentration at the bore hole location.

The analytical results for the metals background samples are shown in Table D-1, included in this appendix. The analytical results have been data validated. Where the analytical results indicate that a metal was below its detection limit, the detection limit was used.

An upper tolerance limit was calculated from the background concentration values for use as a criterion. The upper tolerance limit is a value that a concentration from background would rarely exceed. The tolerance limit was selected so that less than 1% of the background samples would be greater than the value. If an onsite concentration is found that is larger than the upper tolerance limit, then it is unlikely to be from the same distribution of concentration values as was observed in background samples. Likewise, if the sample concentration is less than the upper tolerance limit concentration, there is little evidence to support a conclusion that the value is different from one likely to be observed in background samples.



Metals concentrations in soils can range over many orders of magnitude. For this reason, it is assumed that the concentrations fit log normal distributions. This was demonstrated for the MCAS El Toro background metals analytical results. The analytical results (data points) for each metal are plotted on Figures 1 through 23. As shown in these figures, a straight line can be fit to the data points, thereby demonstrating a log normal distribution. A schematic of a typical log normal distribution is shown in Figure D-2. The relative locations of the median, mean, and tolerance limit for a typical log normal distribution are shown along the curve in this figure. It should be noted that the tolerance limit can be higher than the highest value in the samples pool from the 11 background sampling locations because the upper tolerance limit is set such that 99% of concentrations would be less than the limit.

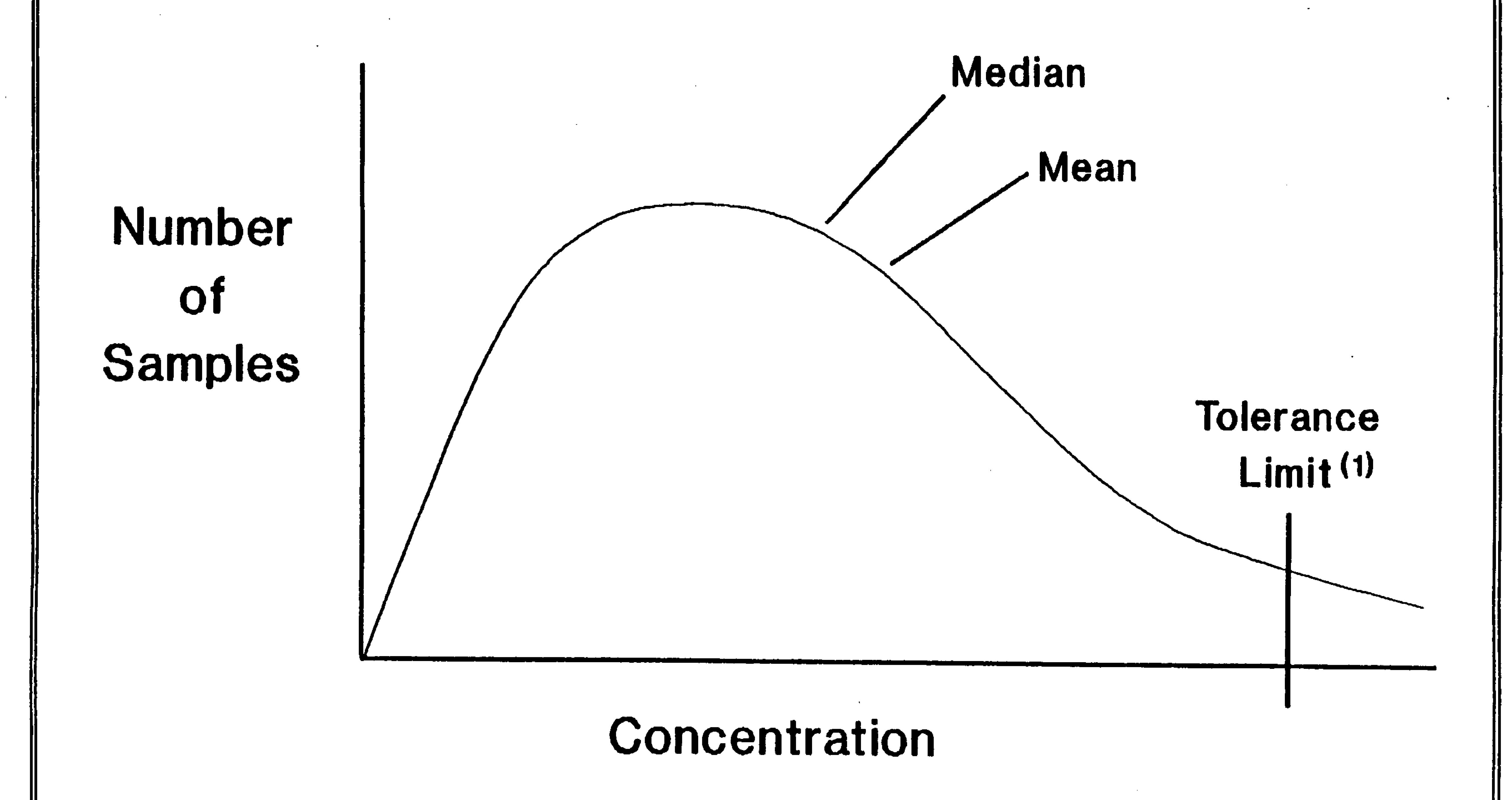
Attachment D-1 presents the summary statistics for the background metal concentrations. These statistics include the mean and standard concentration of the log concentrations, and the estimated arithmetic mean and CV for the samples. Presented are the criterion values for 50% confidence that 99% of background concentrations are less than the concentration shown for each parameter. As stated above, these criterion values (50% confidence of the 99th percentile) correspond to the statistical approach used for the RI/FS Program being conducted at the Station. All values are in PPM.

Figures 1 through 23 show the distribution of background concentrations for metals. The 99th percentile tolerance limit is shown as a dashed line in these figures. The values are plotted both as a cumulative frequency distribution and as box plots.

Box plots display the distribution of the data with the box covering the middle 50% of the data values (from the 25th to the 75th percentile). Lines extend from the ends of the box to the maximum and minimum reasonable values. Outliers are shown as asterisks (for near outliers) and circles (for far outliers). Note that Calcium, Mercury, Nickel, Selenium, Silver, and Sodium all have outlier values. Samples from station identification BGN1910 contribute most of these outliers.

The number of samples available to estimate the tolerance limit influences the value calculated. The tolerance limit is calculated as $\exp(\text{mean}_{\log} + \text{K*Stdv}_{\log})$ where the mean and standard deviation are of the logarithm of the concentrations. The factor K is a tabulated value which depends on the confidence, percentile, and sample size.

Log Normal Distribution



(1) Probability that concentration is > tolerance limit < 1%

Attachment 1

Background Statistics

Parameter	Number Stations	Arith.	Estimated		99TH %tile		
		mean.	Mean	CV	50% conf.	Units	
SILVER	11	.3	.3	.30	.55	MG/KG	
ALUMINUM	11	7212.0	7307.1	.53	25396.26	MG/KG	
ARSENIC	11	1.9	2.3	2.18	37.61	MG/KG	
BARIUM	11	69.6	70.4	.60	281.01	MG/KG	
BERYLLIUM	11	.3	.3	.55	1.20	MG/KG	
CALCIUM	11	8651.6	6645.9	1.28	62164.12	MG/KG	
CADMIUM	11	1.6	1.5	2.09	23.11	MG/KG	
COBALT	11	3.2	3.6	1.19	31.02	MG/KG	
CHROMIUM	11	11.1	11.6	1.45	124.81	MG/KG	
COPPER	11	7.7	7.9	1.41	82.91	MG/KG	
IRON	11	8404.3	8881.8	.88	54001.66	MG/KG	
MERCURY	11	. 1	. 1	1.01	.37	MG/KG	
POTASSIUM	11	2150.2	2258.5	.92	14399.89	MG/KG	
MAGNESIUM	11	3359.5	3377.4	.78	18014.29	MG/KG	
MANGANESE	11	170.4	181.8	.89	1114.98	MG/KG	
SODIUM	11	228.3	228.8	.38	592.31	MG/KG	
NICKEL	11	13.1	13.0	2.00	193.61	MG/KG	
LEAD	11	6.0	6.3	.71	29.91	MG/KG	
ANTIMONY	11	1.4	1.4	. 26	2.81	MG/KG	
SELENIUM	11	. 1	. 1	.69	.48	MG/KG	
TRALLIUM	11	.2	.2	.53	.60	MG/KG	
VANADIUM	11	30.4	30.8	1.27	285.55	MG/KG	
ZINC	11	31.9		.81	179.47	MG/KG	

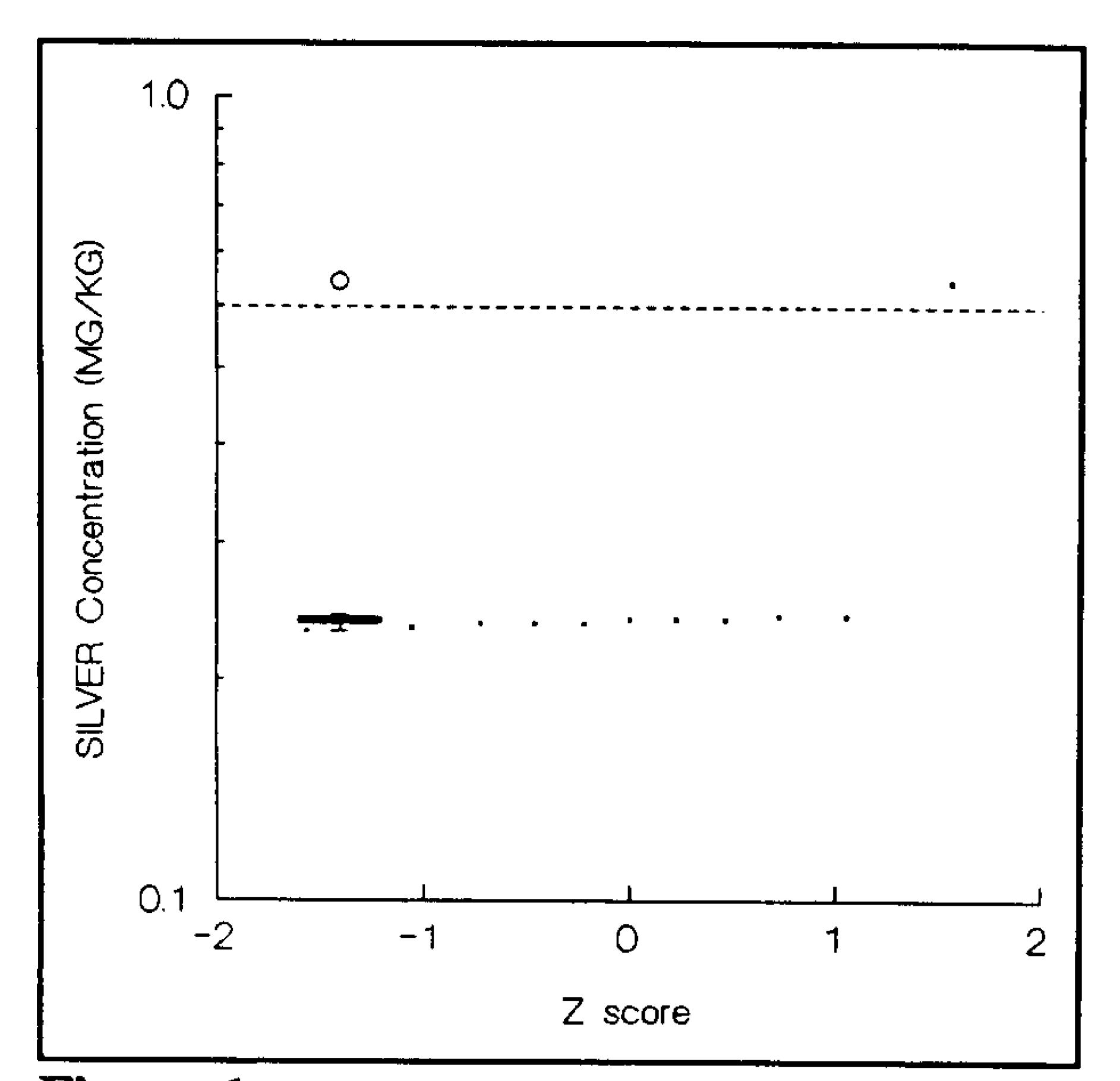


Figure 1

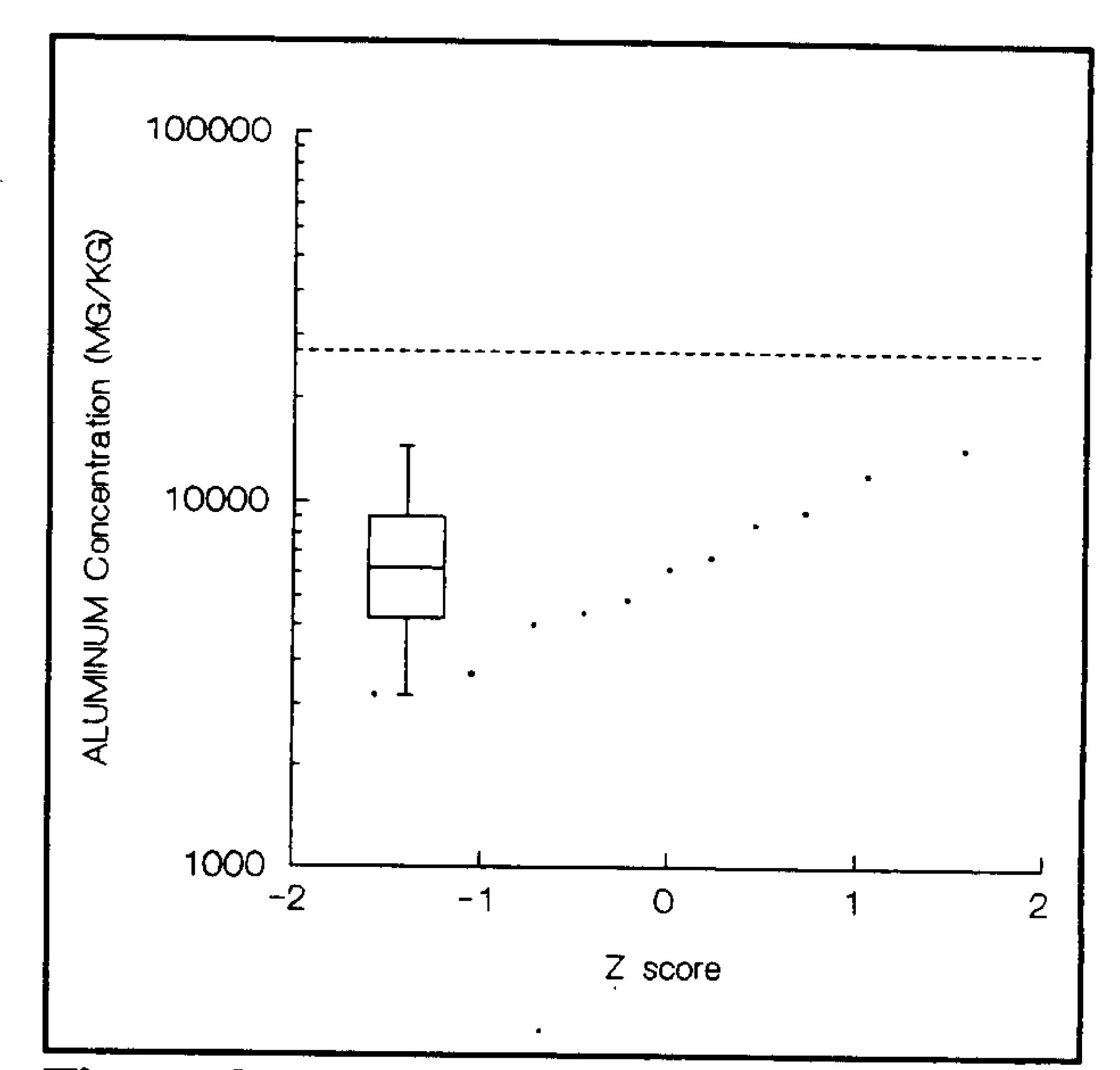


Figure 2

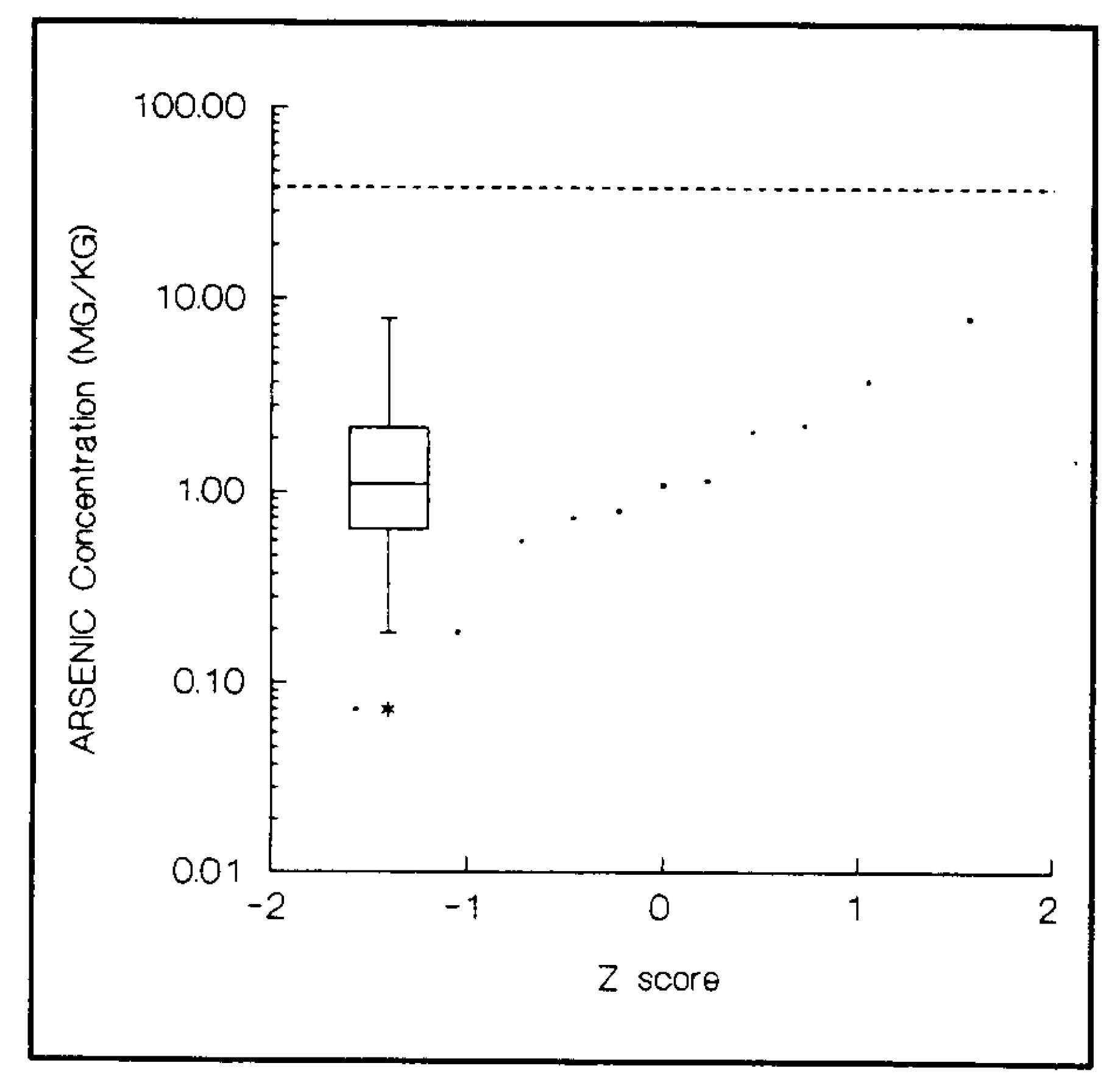


Figure 3

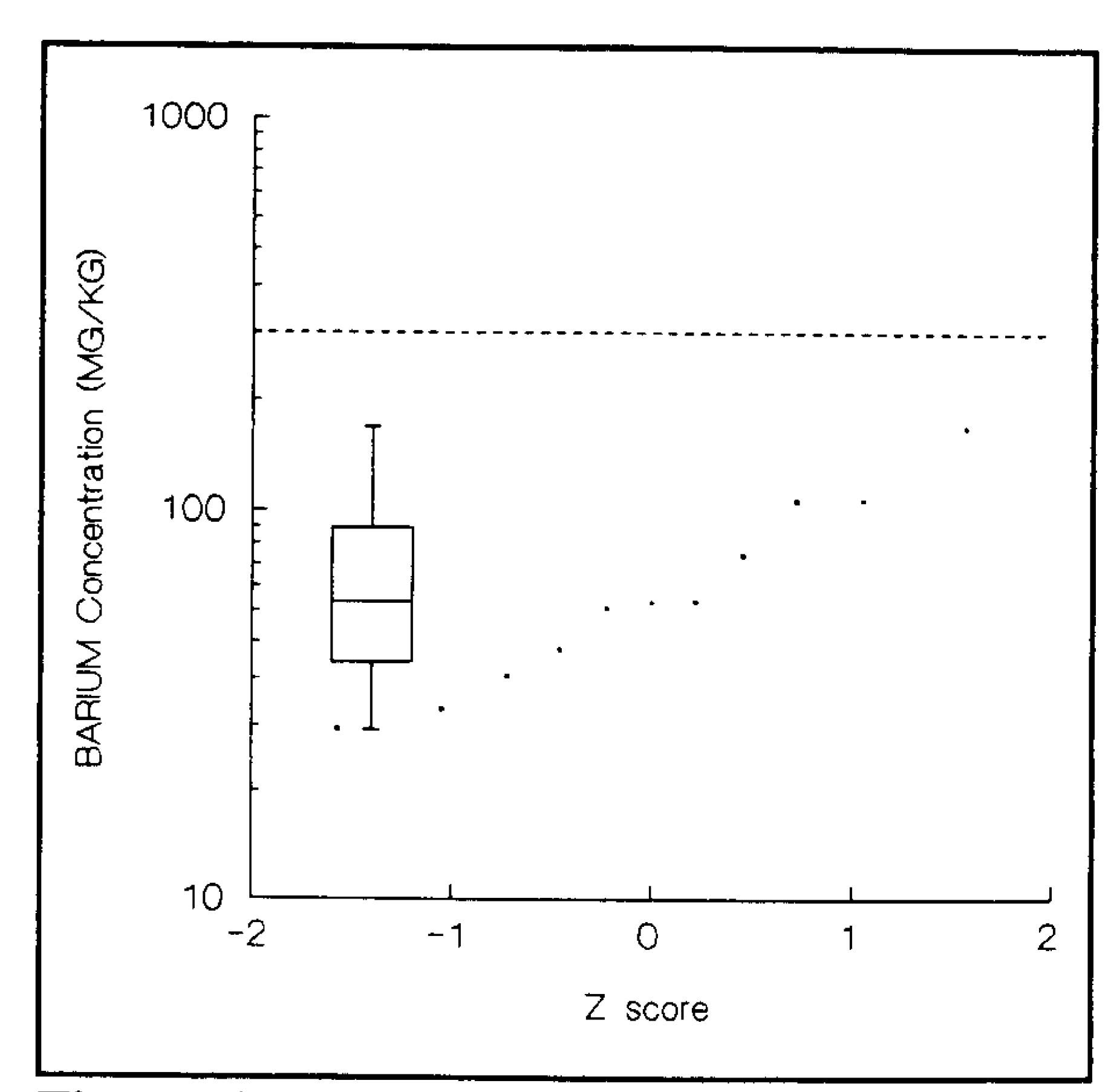


Figure 4

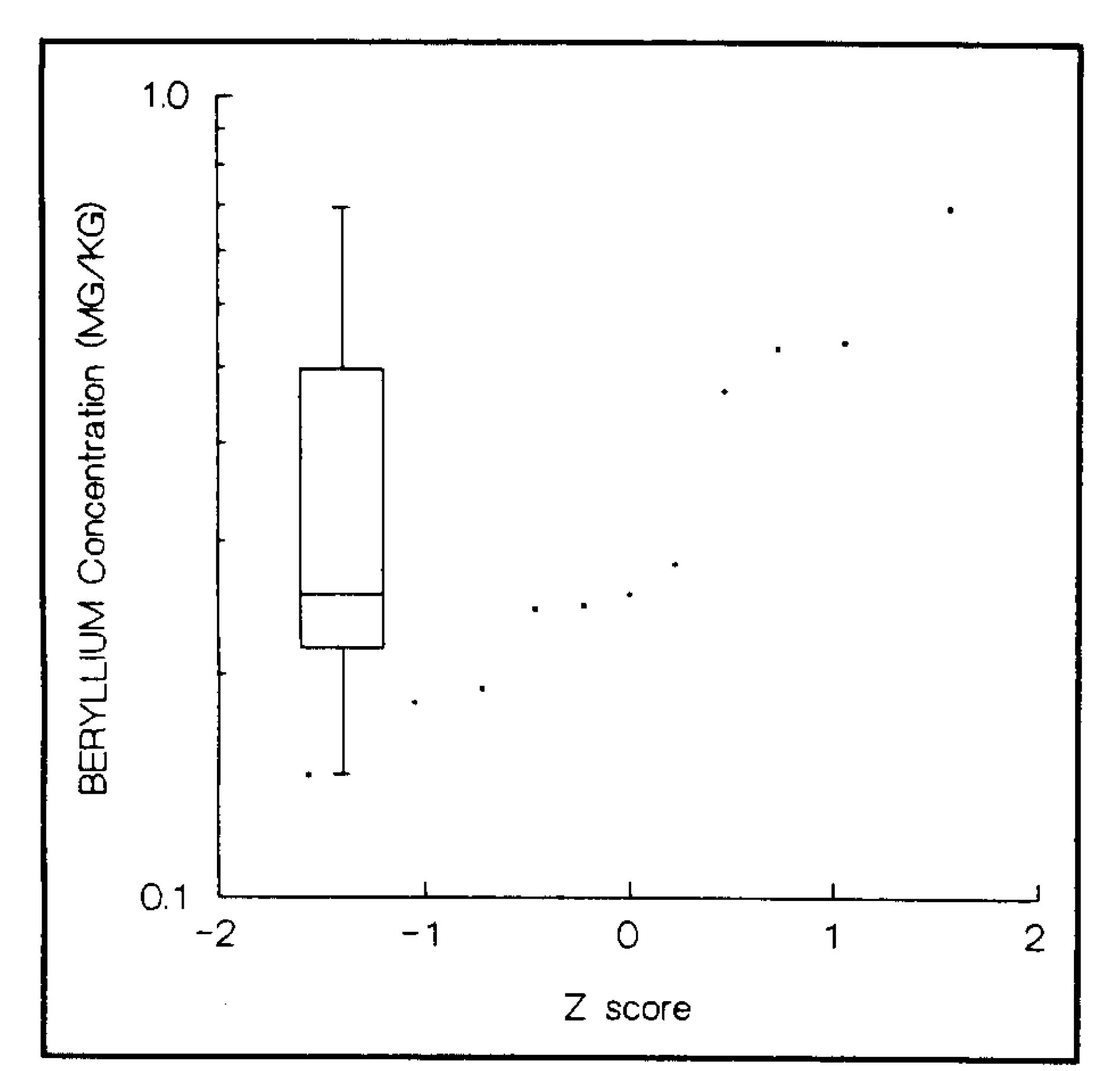


Figure 5

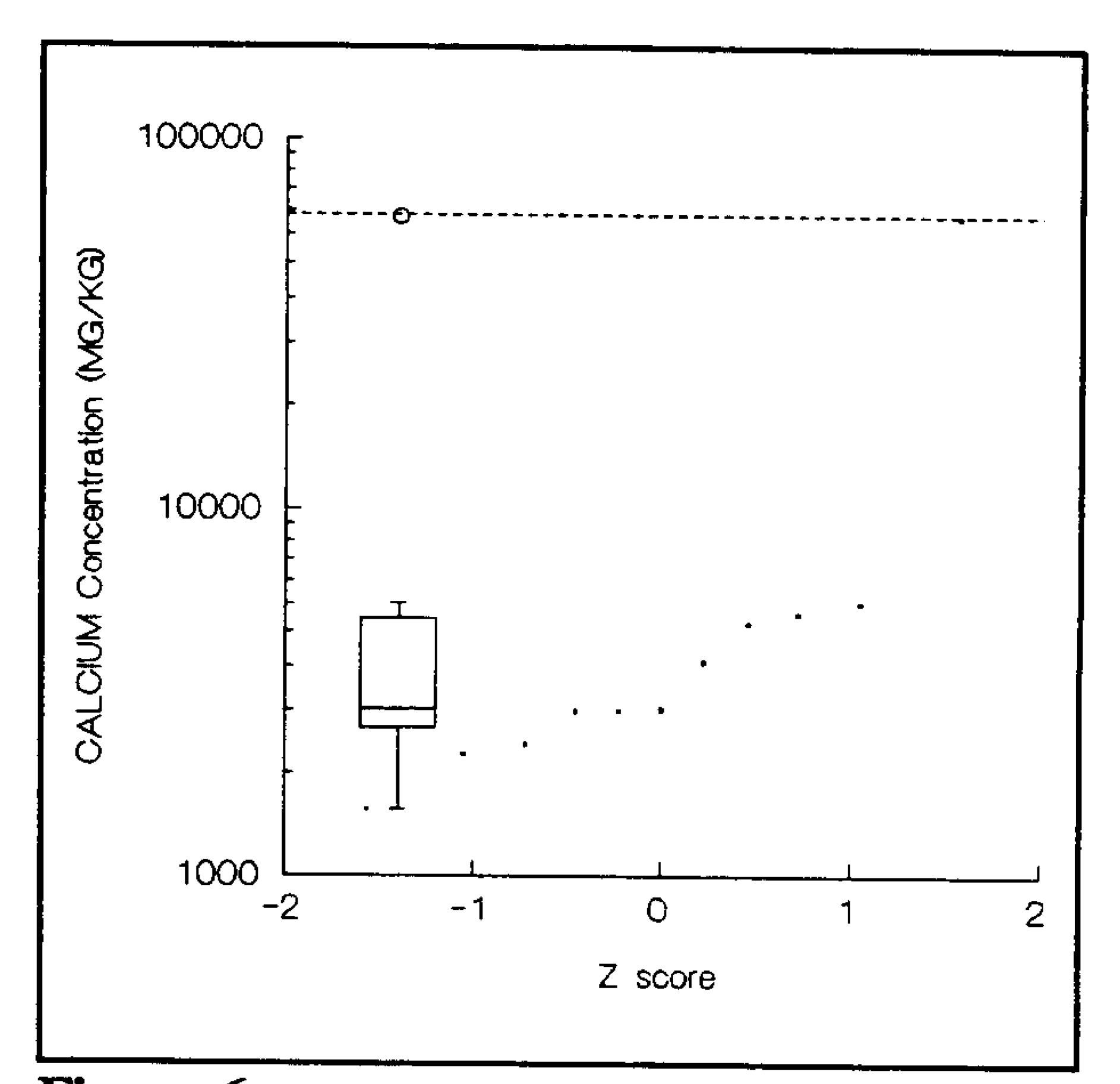


Figure 6

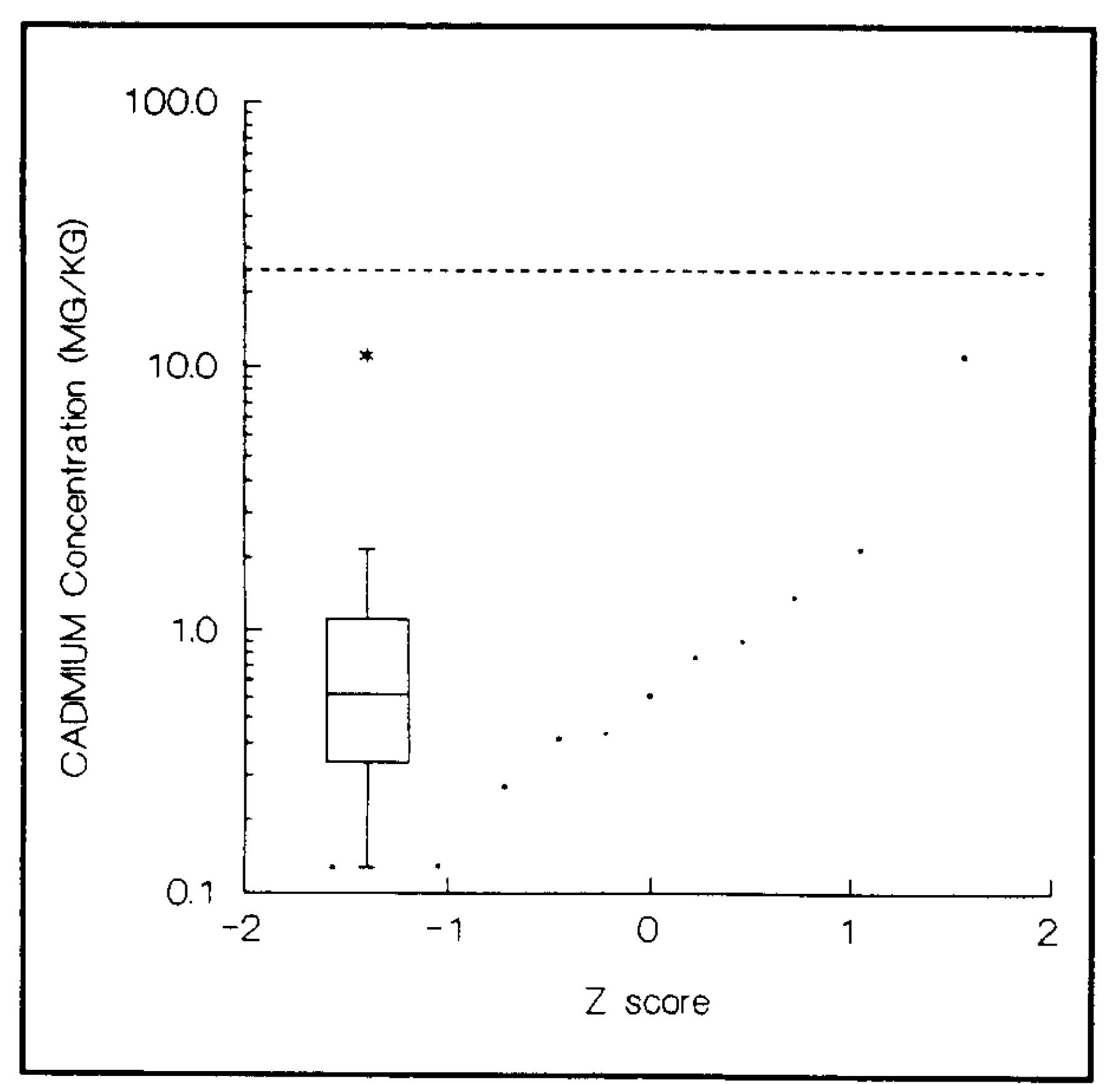


Figure 7

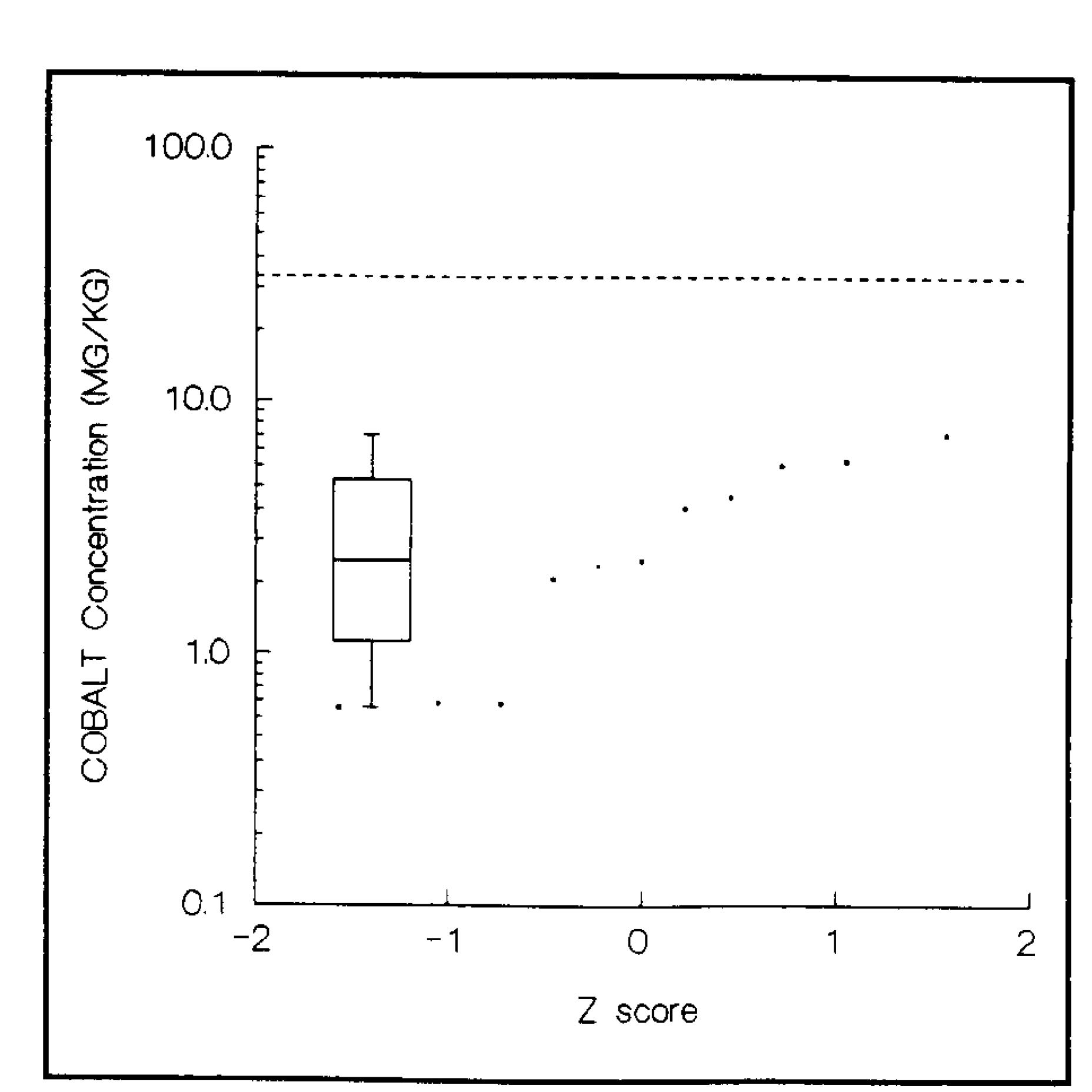


Figure 8

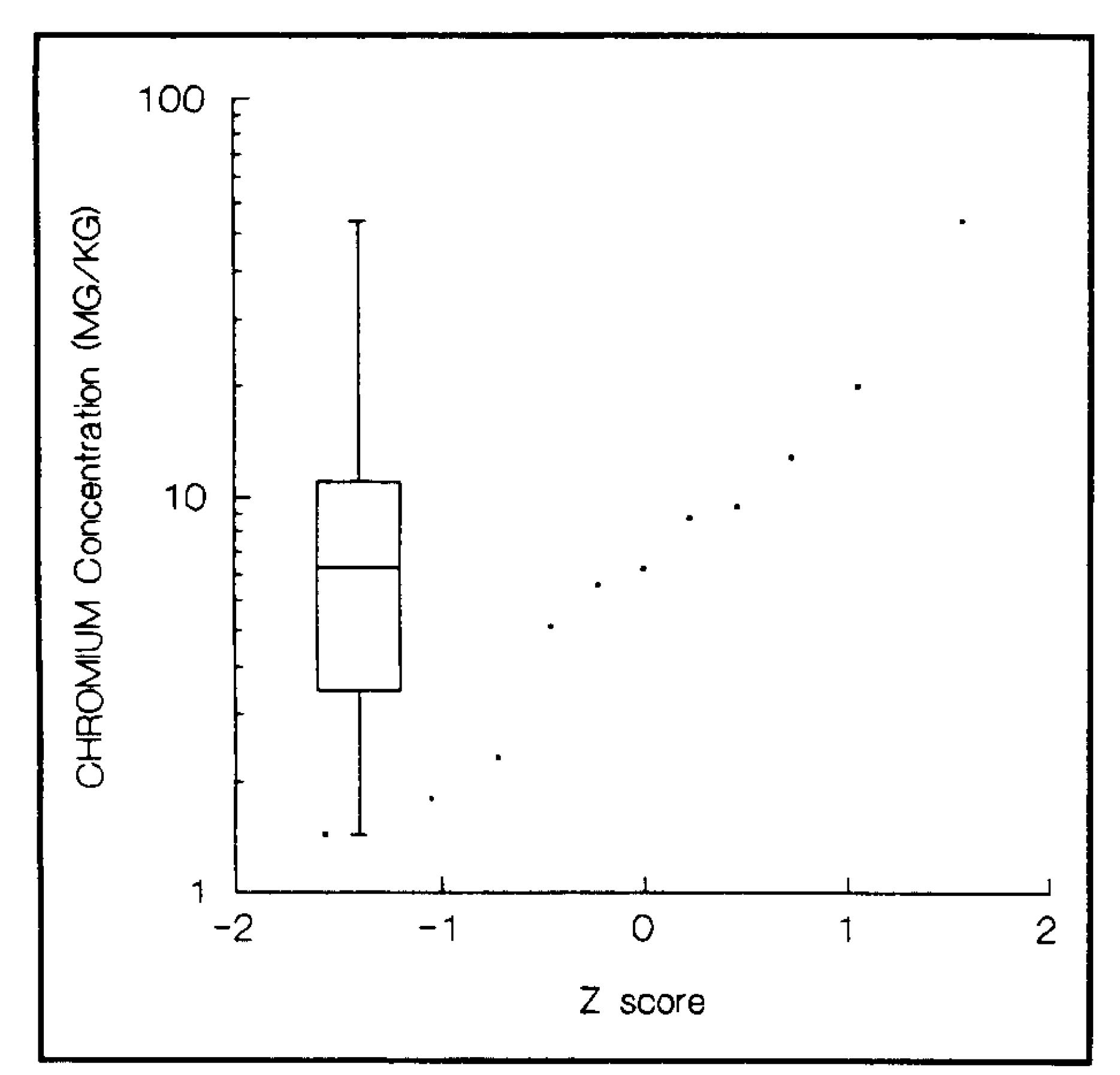


Figure 9

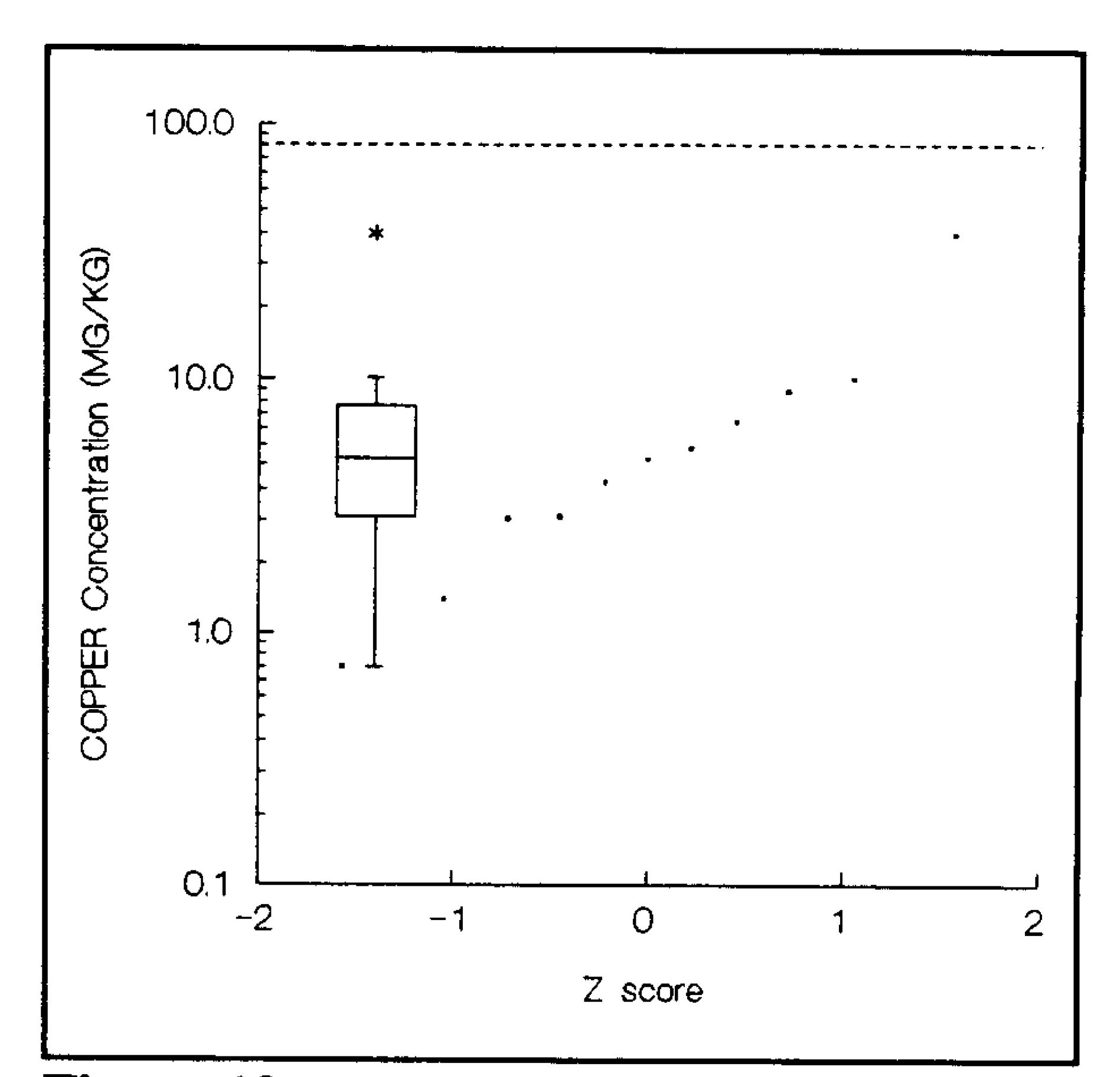


Figure 10

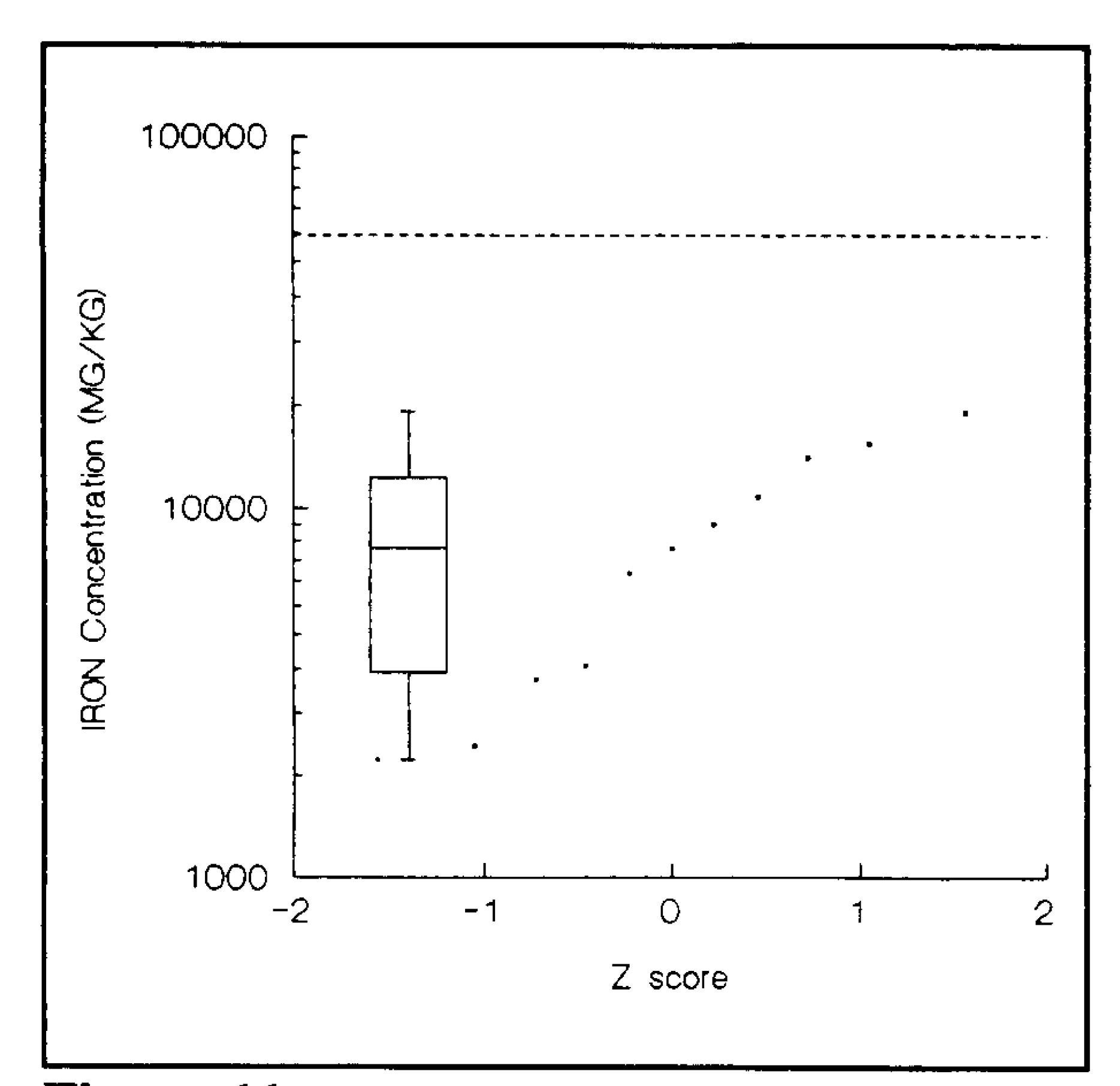


Figure 11

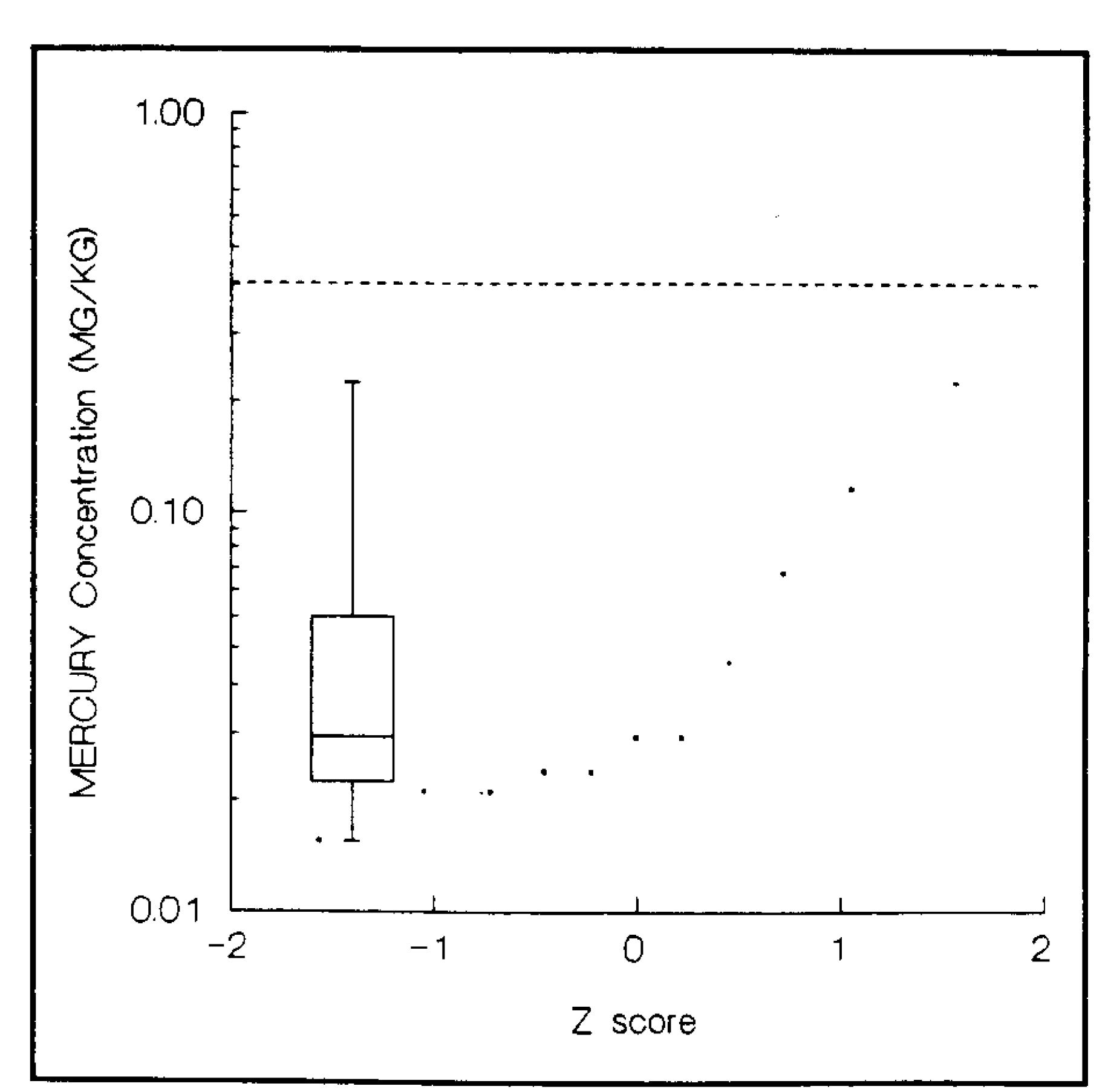


Figure 12

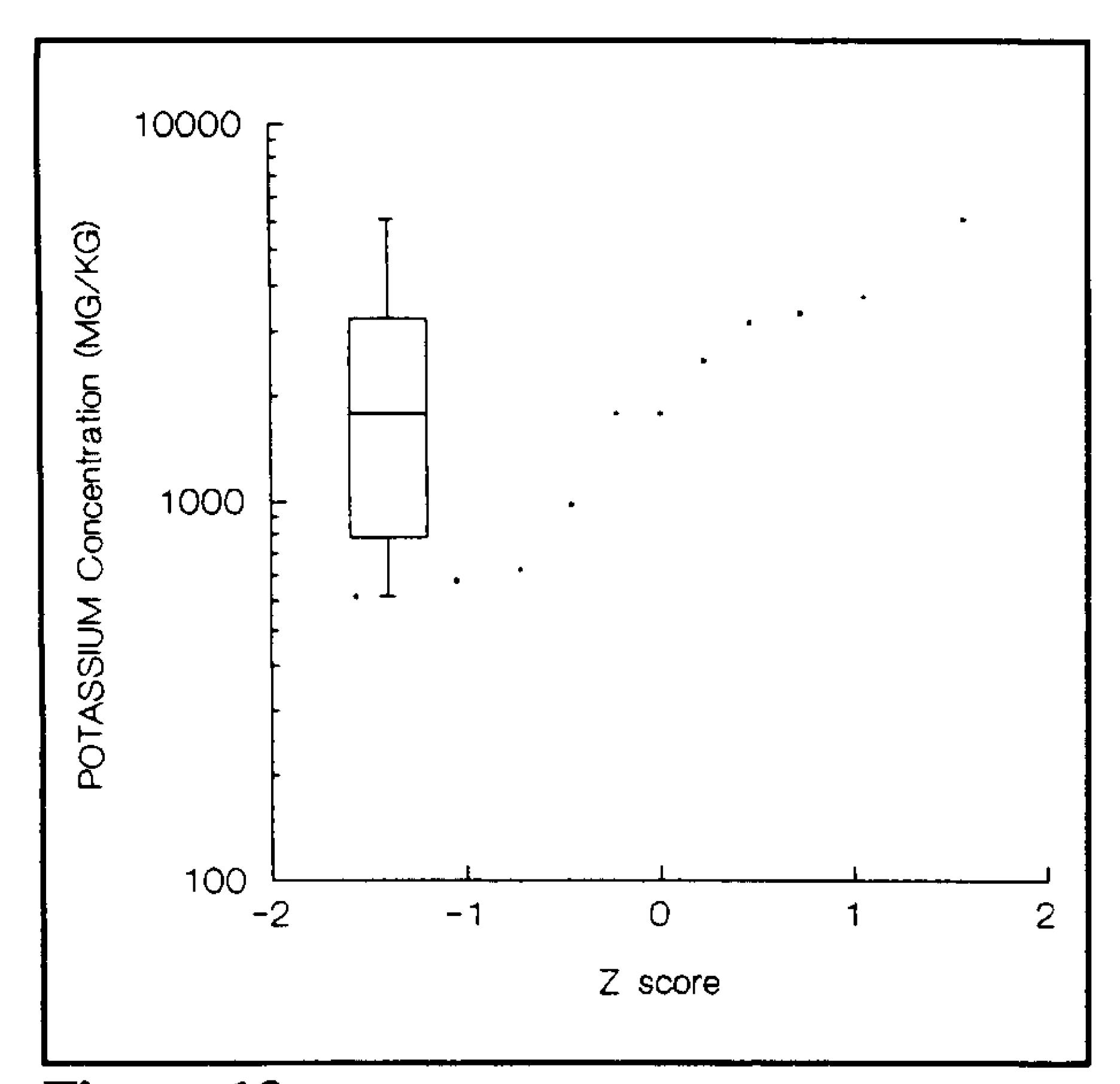


Figure 13

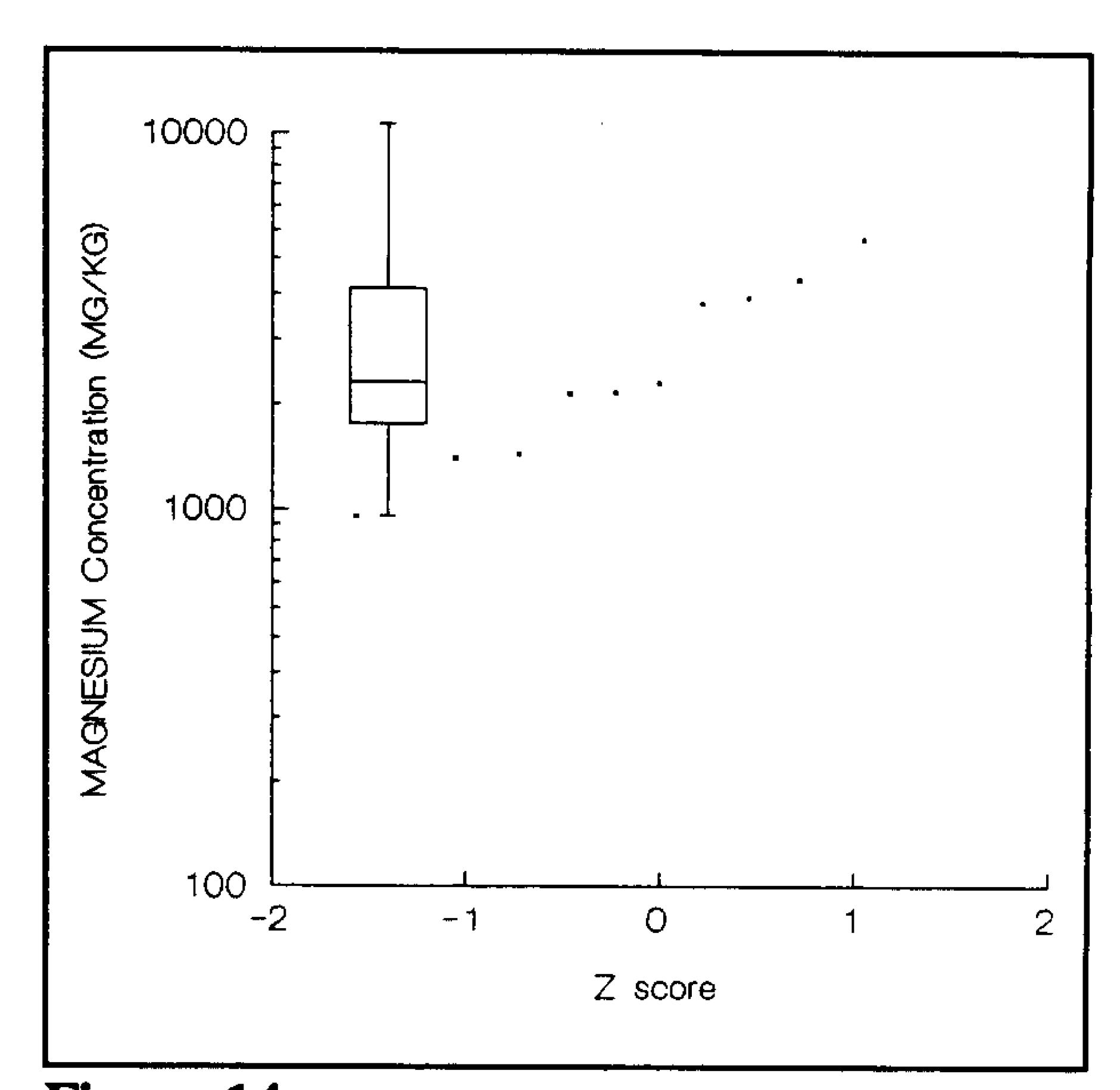


Figure 14

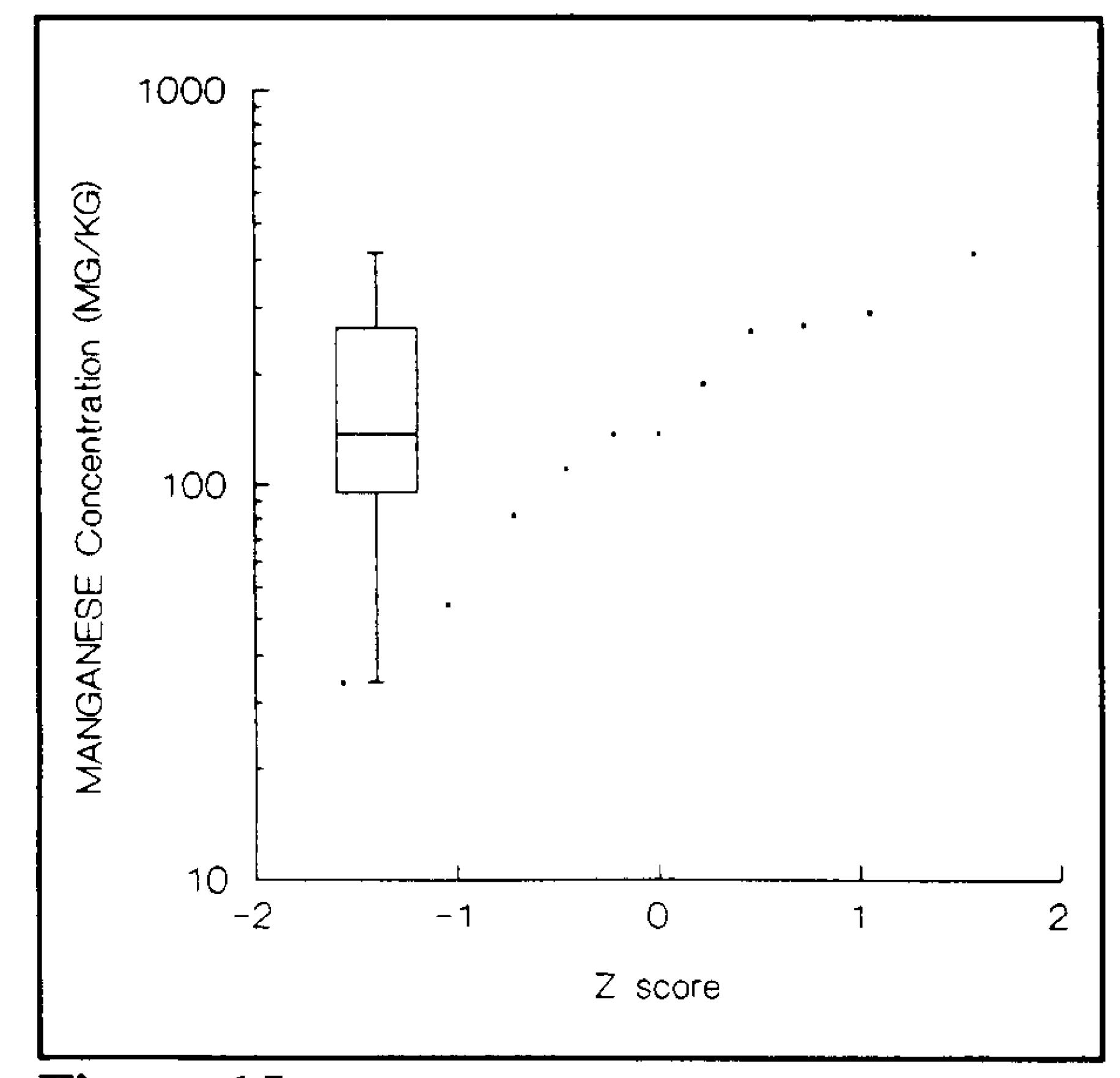


Figure 15

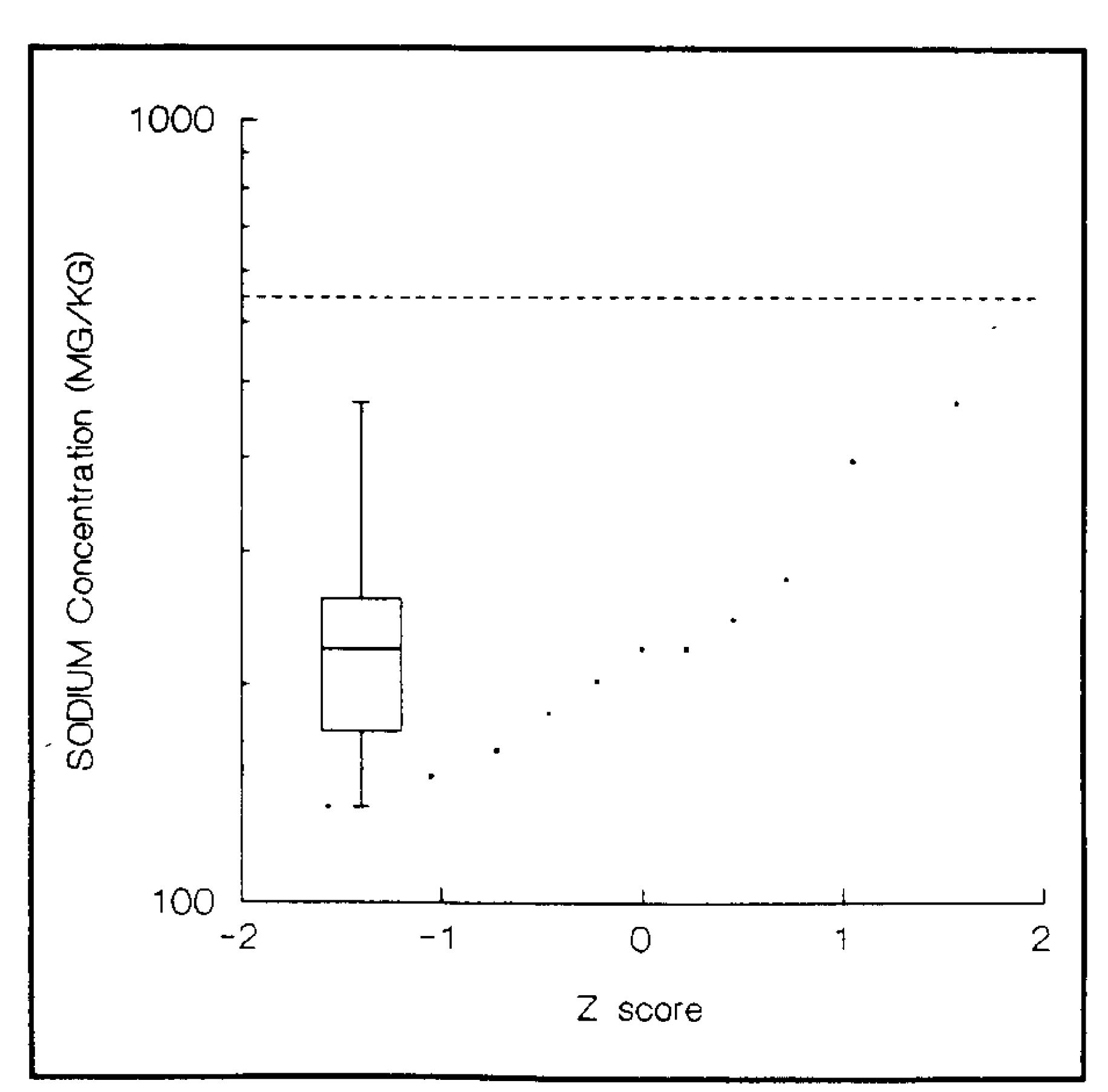


Figure 16

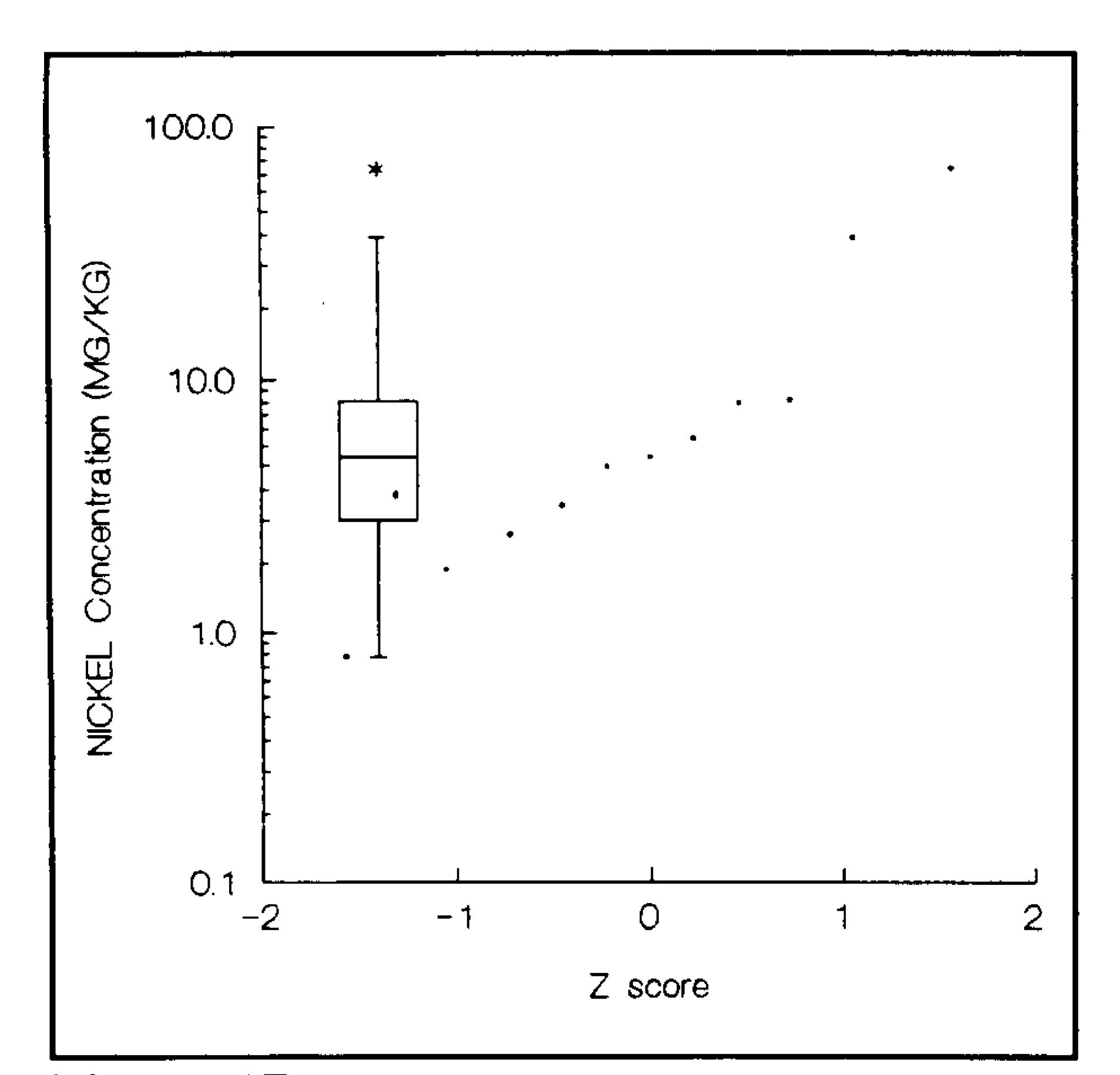


Figure 17

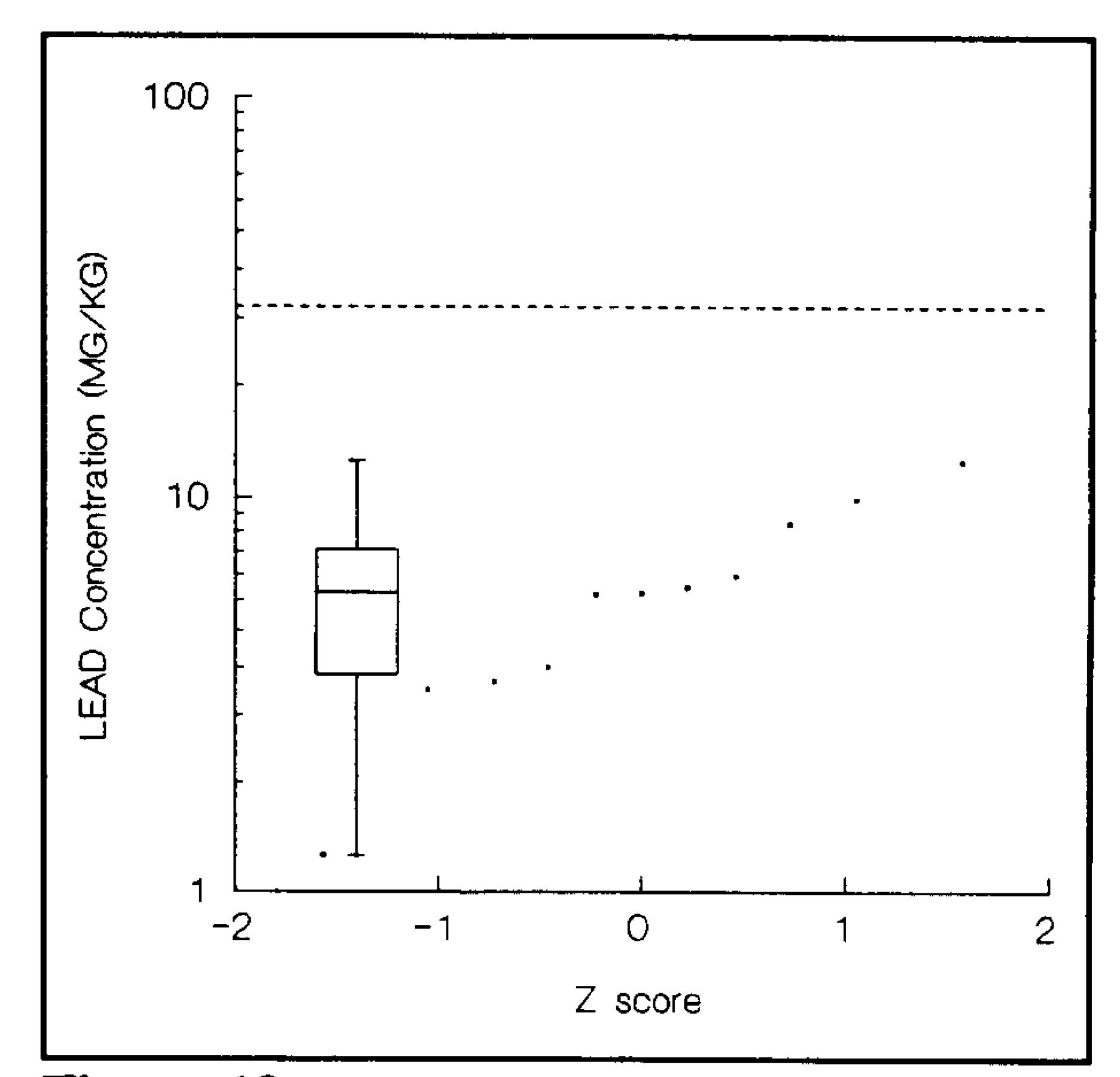


Figure 18

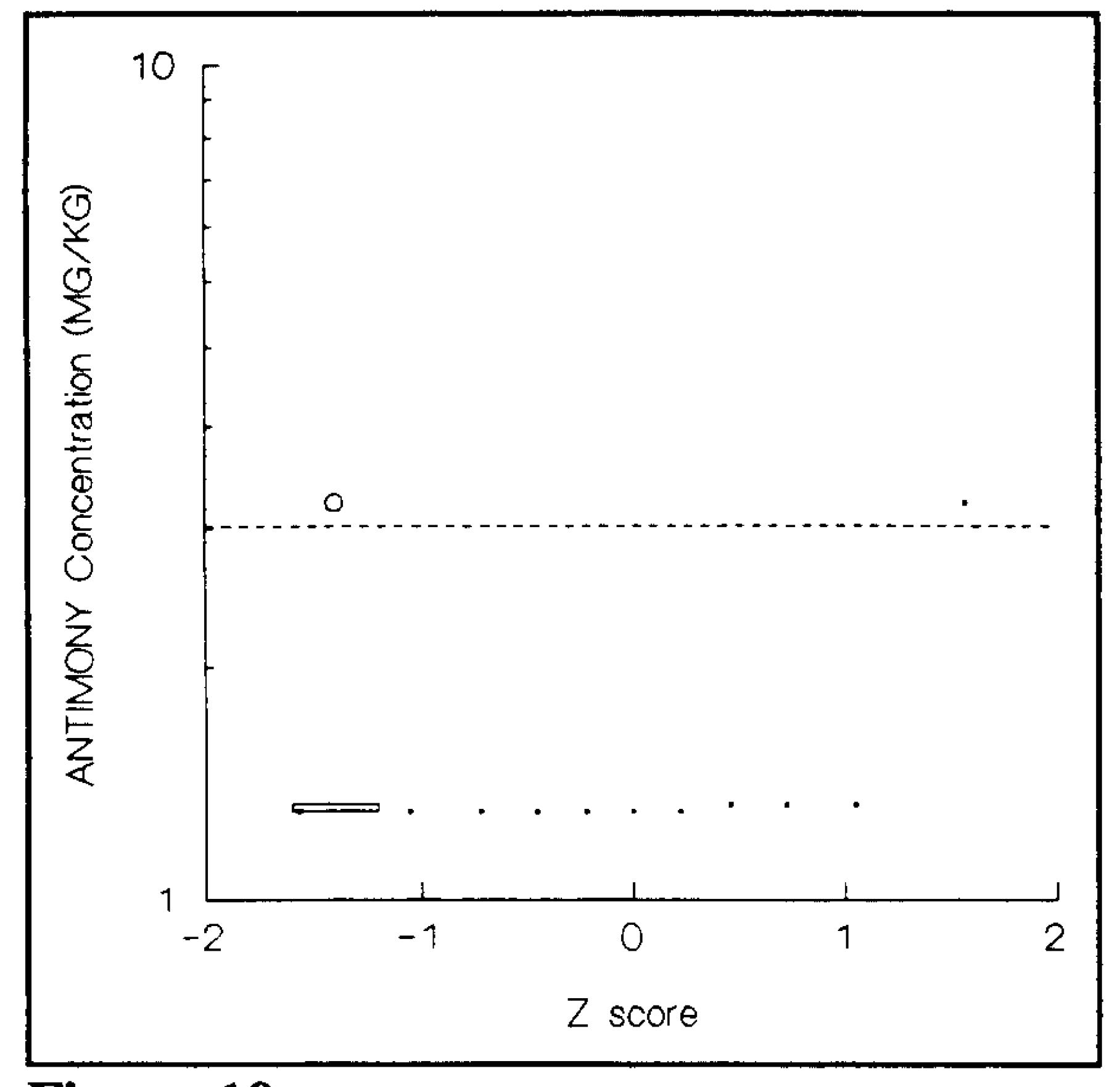


Figure 19

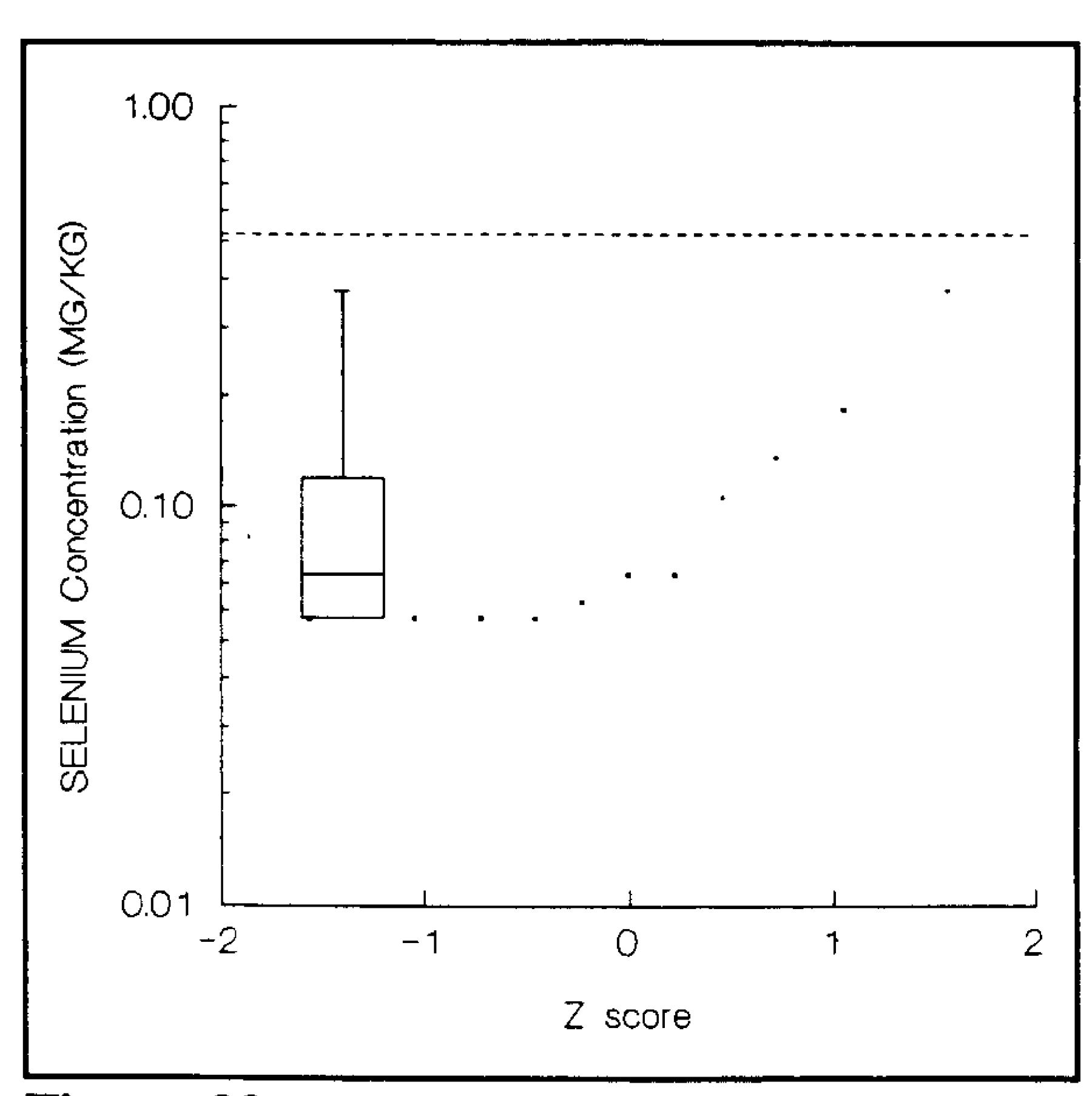


Figure 20

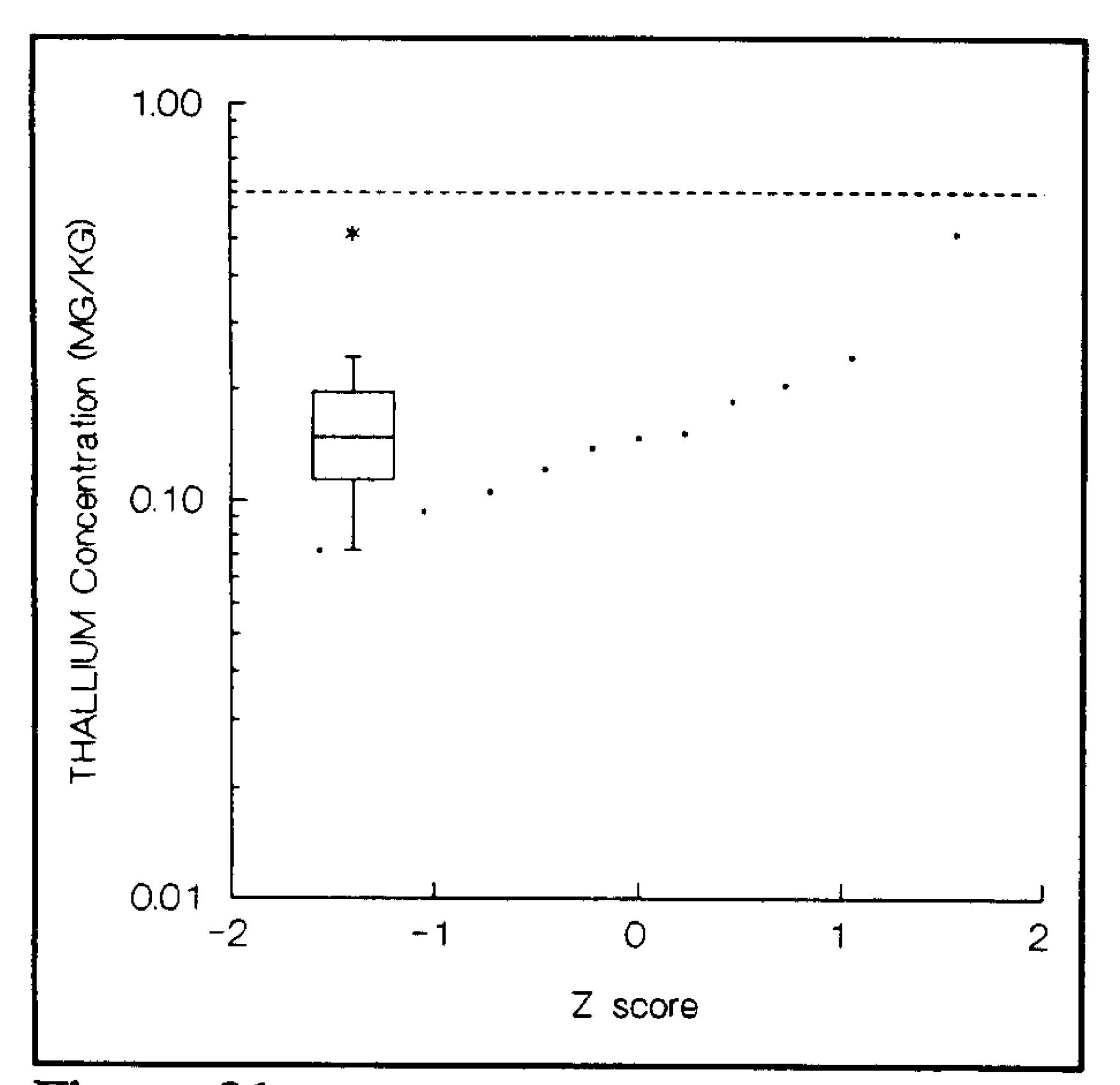


Figure 21

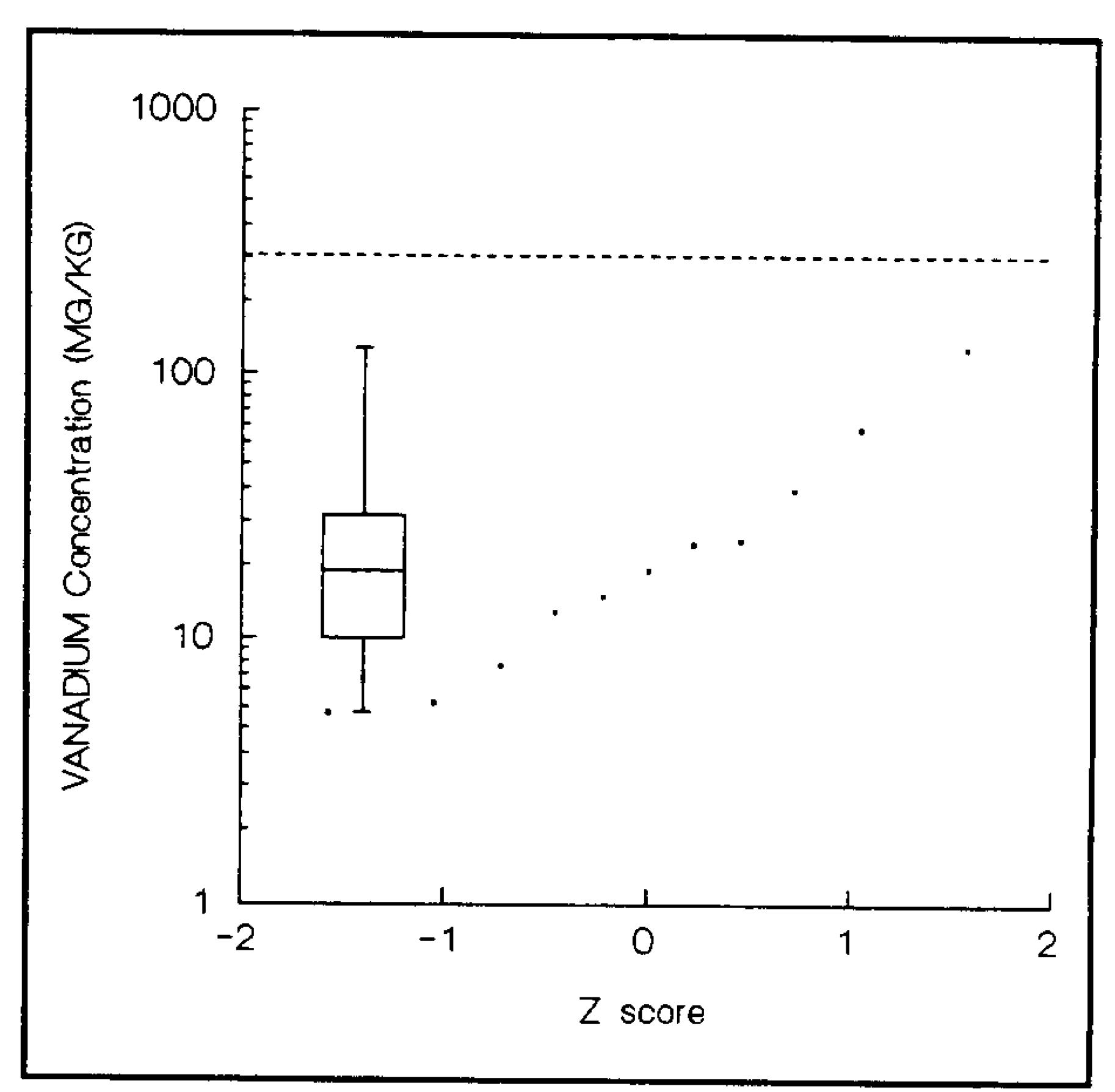


Figure 22

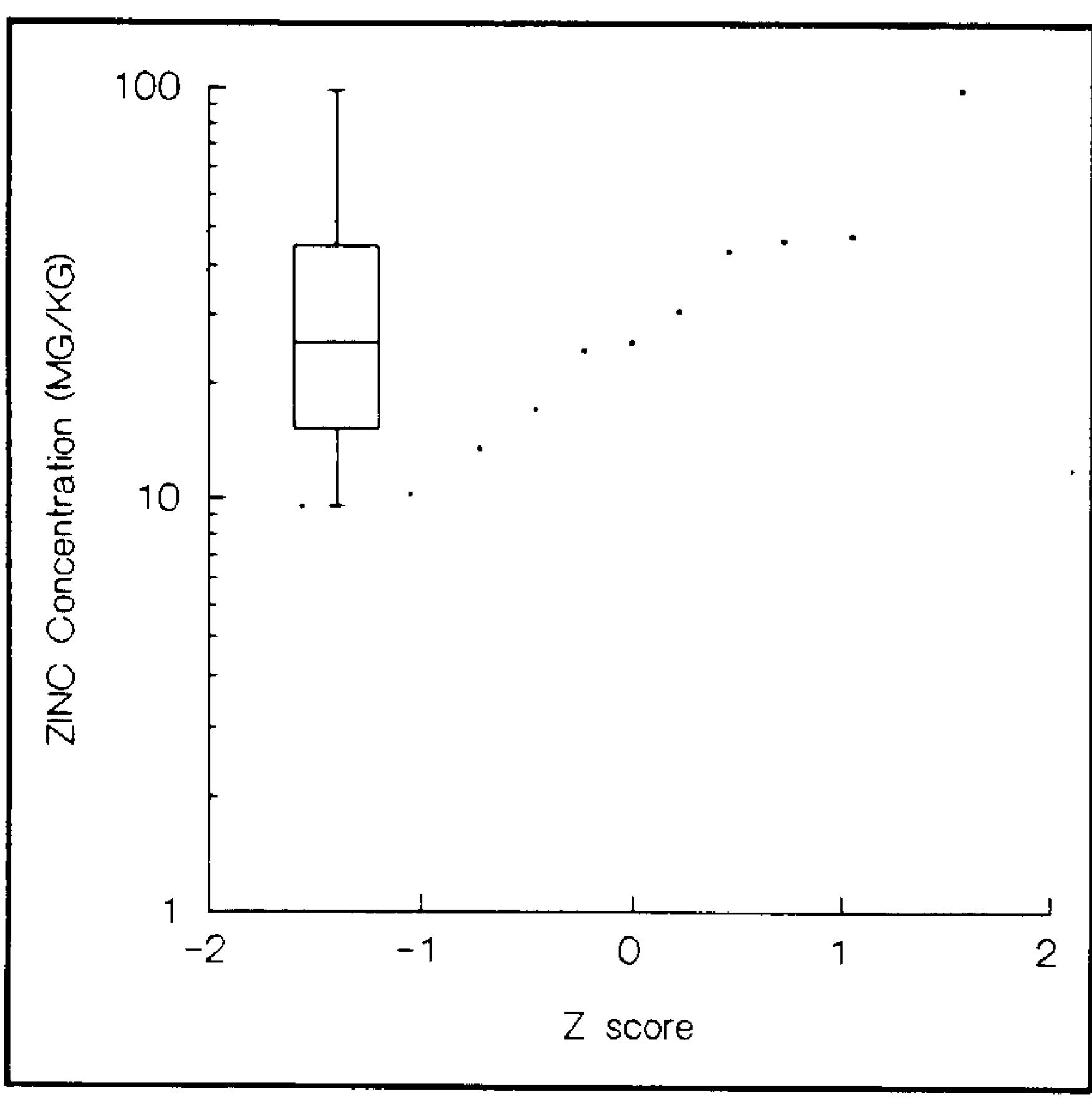


Figure 23

TABLE D-1. BACKGROUND METALS RESULTS												
Station	Sample	Depth		CONCENTRATIONS (mg/kg)								
ID	ID	(feet)	AI	Sb	As	Ba	Ве	Cd	Cr	Со	Cu	Fe
BGN112	S1456655	0	9930	2.5 U	2.80	63.4	0.35 b	0.75 b	12.4	5.2 b	6.6	12300
	S1456656	2	14000	2.7 U	4.70	90.5	0.62 b	0.84 b	25.5	6.5 b	7.1	17400
BGN156	S1456659	0	6870	2.5 U	2.40	105.0	0.53 b	1.30	8.0	4.3 b	11.1	9360
	S1456660	2	10500	2.6 U	2.1 b	109.0	0.53 b	1.20	10.5	4.2 b	9.0	11600
BGN178	S1456661	0	7970	2.6 U	0.46 b	59.7	0.24 b	0.38 b	6.7	4 b	5.6	9640
	S1456662	2	6190	2.5 U	0.65 b	57.5	0.24 b	0.43 b	5.3	3.6 b	5.1 b	8410
BGN1910	S1456663	0	15300	4.5 b	7.40	153.0	0.79 b	10.60	55.0	5.2 b	36.2	18500
	S1456664	2	12900	3 U	8.50	172.0	0.66 b	11.40	43.7	6 b	37.9	17700
BGN111	S1456765	0	4210	2.5 U	0.86 b	40.1 b	0.37 U	0.65 b	6.2	2.3 b	4.1 b	3980
	S1456775	2	6630	2.6 U	0.74 b	32.5 b	0.36 U	0.25 U	7.1	1.7 b	1.6 b	3580
BGN134	S1456786	0	7730	2.6 U	1.6 b	90.3	0.49 U	2.60	9.2	9.7 b	8.5	10900
	S1456787	2	11200	2.6 U	2.50	124.0	0.44 U	1.50	16.0	5 b	9.5	16300
BGN212	S1456776	0	2640	2.5 U	0.29 b	36 b	0.26 b	0.25 U	2.7 U	1.2 U	2 J	2310
	S1456777	2	3320	2.6 U	0.15 U	25.9 b	0.2 b	0.26 U	2.1 b	1.3 U	0.72 J	1880
BGN234	S1456778	0	6250	2.6 U	0.98 b	57.6	0.11 U	0.65 b	10.2	2 b	5.6	7540
	S1456779	2	6880	2.5 U	1.2 b	54.4	0.23 ь	0.48 b	7.6	2.5 b	4.1 b	8090
BGN256	S1456780	0	4960	2.5 U	0.65 b	43.9	0.26 b	0.38 b	4.5 U	1.2 U	4.3 b	3890
	S1456781	2	3870	2.6 U	0.91 b	42.6 b	0.27 b	0.26 U	4 U	1.3 U	1.4 J	2790
BGN278	S1456782	0	5250	2.6 U	1.2 b	62.2	0.24 b	1.1 b	6.5	2.8 b	4.7 b	7140
	S1456783	2	4710	2.6 U	1.1 b	54.2	0.11 b	0.73 b	5.8 U	1.9 b	3.2 b	6310
BGN2010	S1456784	0	3270	2.5 U	0.14 U	31.8 b	0.6 b	0.25 ป	3.1 U	1.2 U	1.1 J	2310
	S1456785	2	3550	2.6 U	0.15 U	22.8 b	0.26 b	0.25 U	2.5 U	1.2 U	0.36 J	2260
BGN156(1)	S1456771	2	10700	2.6 U	2 b	108	0.39 b	1.6	11.4	4.1 b	9.3	12500
BGN256(1)	S1456773	2	4740	2.6 U	0.71 b	45	0.26 b	0.26 U	4.5 U	1.3 U	1.6 J	3300
Background	Threshold (3)		25396.3	2.81	37.61	281.01	1.2	23.11	124.81	31.02	82.91	54001.7

TABLE D-1. BACKGROUND METALS RESULTS											
Station	Sample	Depth									
ID	ID	(feet)	Pb	Mn	Hg	Ni	Se	Ag	TI	V	Zn
BGN112	S1456655	0	8.6	251	0.41	5.7 b	0.13 b	0.44 U	0.19 b	39.2	37.6
	S1456656	2	2.9	236	0.03 U	10.6	0.22 b	0.46 U	0.2 b	85.4	48.0
BGN156	S1456659	0	22.4	276	0.09	8 b	0.1 U	0.44 U	0.15 U	20.8	45.4
	S1456660	2	2.3	272	0.03 U	7.4 b	0.11 U	0.45 U	0.15 U	25.7	35.3
BGN178	S1456661	0	4.9	185	0.04 b	3.4 b	0.16 b	0.46 U	0.22 b	24.4	32.1
	S1456662	2	1.6	174	0.03 U	3 b	0.1 U	0.44 U	0.15 U	21.5	25.4
BGN1910	S1456663	0	12.4	263	0.11	64.3	0.37 b	0.65 b	0.53 b	134	99.5
	S1456664	2	4.8	241	0.12	71.1	0.32 b	0.53 b	0.42 b	117	97.9
BGN111	S1456765	0	10.8	92.9	0.05 U	5.3 b	0.10 U	0.44 U	0.15 U	11	17.9
	S1456775	2	1.9	126	0.03 U	4.6 b	0.11 U	0.44 U	0.15 U	14.1	8.4
BGN134	S1456786	0	4.9	574	0.04 U	57.9	0.11 U	0.46 U	0.22 b	28.5	41.7
	S1456787	2	1.9	195	0.04 U	14.5	0.21 b	0.45 U	0.24 b	44.8	46.0
BGN212	S1456776	0	6.3	49.3	0.03 b	1.8 b	0.1 U	0.43 UJ	0.27 U	5.1 b	12.9
	S1456777	2	1.1	13.9	0.03 U	1.8 b	0.13 U	0.46 UJ	0.15 U	5.4 b	6.2
BGN234	S1456778	0	17.6	171	0.04 b	5.6 b	0.11 U	0.46 UJ	0.15 U	16.9	26.7
<u> </u>	S1456779	2	2.2	97.4	0.03 U	3.5 b	0.1 U	0.44 UJ	0.39 U	19.2	19.2
BGN256	S1456780	0	10.6	105	0.07	3.4 b	0.16 U	0.44 UJ	0.34 U	8.1 b	21.8
	S1456781	2	1.1	59.8	0.03 U	1.7 U	0.11 U	0.45 UJ	0.32 U	7.2 b	10.7
BGN278	S1456782	0	10	150	0.03 Ь	6.4 b	0.12 U	0.45 UJ	0.32 U	15.6	28.6
	S1456783	2	1.4	118	0.03 U	5.3 b	0.15 U	0.46 UJ	0.39 U	13.3	19.4
BGN2010	S1456784	0	1.8	49.6	0.03 U	1.6 U	0.1 U	0.43 UJ	0.29 U	5.4 b	10.8
	S1456785	2	0.67	49.6	0.03 U	1.6 U	0.11 U	0.44 UJ	0.19 U	6.1 b	9.6
BGN156(1)	S1456771	2	2.1	264	0.09	10.1	0.11 U	0.45 U	0.15 b	26.8	35.1
BGN256(1)	S1456773	2	1.4	64.3	0.03 U	2.2 b	0.11 U	0.45 UJ	0.15 U	8.2 b	11.4
Background	Threshold (3)	•	29.91	1114.98	0.37	193.61	0.48	0.55	0.6	285.55	179.47

TABLE D-1. BACKGROUND METALS RESULTS

NOTES:

- (1) Duplicate for sample S1456660
- (2) Duplicate for sample \$1456781
- (3) Tolerance Limit 50% confidence that value is greater than 99% of background concentrations.
- b or J = The reported value obtained was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit.
- U = The value was less than the IDL or was not detected.

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Appendix E LEACHING PATHWAY EVALUATION

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Appendix E

MCAS EL TORO RCRA FACILITY ASSESSMENT LEACHING PATHWAY EVALUATION

When contamination is left in the vadose zone, there is the possibility of the contaminants leaching to the groundwater, causing potentially unacceptable impacts on water quality. The model used to quantify the leaching pathway for the screening evaluation for the El Toro RFA was obtained from the Guidance for Assessing Low Probability Hazard Sites at Idaho National Engineering Laboratory (INEL) (USDOE 1991). In order to maintain conservatism, this model assumes groundwater to be at a shallow depth (10 feet below ground surface [bgs]). The only element of this model not used was the estimate for transport time to the groundwater. It should be noted that groundwater depth at MCAS El Toro is typically in excess of 100 feet bgs.

The equation for the leaching pathway calculations is derived as described below. The mass flow rate in the aquifer equals the mass flow rate entering the aquifer from leaching; therefore, the concentration of the contaminant in the pore water in the vadose zone immediately above the water can be calculated.

$$MF_{ca} = MF_{cv}$$

where.

MF_{ca} = mass flow rate of contaminant in aquifer

 MF_{CV} = mass flux of contaminant in vadose zone

These parameters can be calculated as follows:

$$MF_{cv} = C_w * q_a * A_a$$

$$MF_{cv} = C_p * q_v * A_v$$

where,

 C_{W} = contaminant concentration in the groundwater (mg/l)

 $q_a = flux in the aquifer (ft/yr)$ $K_a * i$, where K_a is the hydraulic conductivity (ft/yr) and i is the hydraulic gradient (ft/ft)

 $A_a = cross-sectional$ area of the flow per unit width of the groundwater (ft²)

= $L_s * 1$ ft, where L_s is the length of the well screen (ft)

Ср	=	contaminant concentration in the vadose zone pore water (mg/l)
	=	$\rm C_{\rm S}/\rm K_{\rm d}$, where $\rm C_{\rm S}$ is the contaminant concentration in the vadose zone soil and $\rm K_{\rm d}$ is the soil/water partition coefficient for the contaminant.
q_{V}	=	volumetric flux or net infiltration in the vadose zone (ft/yr)
A _v	=	cross-sectional area of vadose zone flow per unit width of site (ft^2) ;
	=	y_V^{\star} 1 ft, where y_V^{\star} is the source length parallel to the direction of groundwater flow.

Thus, the equation used for the leaching pathway calculations is as follows:

$$C_W * q_a * A_a = C_p * q_V * A_V$$

This equation was rearranged and simplified as follows to solve for C_s , which equals the contaminant concentration in the vadose zone soil as follows:

$$C_s = C_w * K_d * V_a/V_s$$

where, $C_{S} = \text{concentration of contaminant in soil (mg/kg)}$ $C_{W} = \text{concentration of contaminant in the aquifer (mg/l)}$ $K_{d} = \text{soil/water partition coefficient for the contaminant (ml/g)}$ $V_{a} = \text{q}_{a} * A_{a}, \text{ which is assumed to be the volume of water passing through a unit cross-sectional area of the aquifer in one year (ft 3/yr)}$ $V_{S} = \text{q}_{V} * A_{V}, \text{ the volumetric rate of pore water passing through a unit surface area of the vadose zone in one year (ft 3/yr)}$

This model is inherently conservative, i.e., it provides a maximum estimate of potential soil concentrations based on an assumed groundwater concentration. It assumes that equilibrium conditions are obtained between the soil and the pore water (and thus maximum dissolution into the pore water) and a constant contaminant source (no reduction in soil concentration with leaching). In reality, it is unlikely that equilibrium conditions are obtained in the vadose zone, and the contaminant source concentrations are reduced over time due to leaching and other degradation processes. However, this model is sufficient for the purposes of the screening evaluation.

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A physical representation of the model is shown in Figure 1. A brief explanation of the values chosen for the equation parameters is provided in the following sections. The resulting reference concentrations derived for soil for the leaching pathway are shown in the attached spreadsheet.

Concentration of Contaminants in Groundwater (C_w)

In order to estimate potential levels of concern for the leaching pathway in soil, reference values that could represent an acceptable concentration for groundwater had to be chosen. Therefore, the Maximum Contaminant Levels (MCLs) for California and Federal Drinking Water Standards were used.

Soil/Water Partition Coefficient (Kd)

The pore water concentration is a function of the contaminant concentration in the soil and the physical and chemical interaction of the contaminant with the soil material as estimated by the partition coefficient, K_d . For organic contaminants, K_d is estimated

by:

$$K_d = K_{oc} * f_{oc}$$

where:

K_{oc} = organic carbon partition coefficient for the contaminant, and

f_{oc} = fraction of organic carbon in the soil

The K_{OW} (octanol/water partition coefficient) was used to estimate K_{OC} values for organic contaminants using regression equations provided in Lymann et al. 1990. The Log K_{OW} values used and their references are shown on the attached spreadsheet.

The regression equations used to estimate K_{oc} values from the Log K_{ow} for input into the model are:

$$log Koc = 1.00 log Kow - 0.21$$

(Compounds that are mostly aromatic, or polynuclear aromatic, or chlorinated hydrocarbons)

$$log Koc = 0.544 log Kow + 1.377$$

(Compounds that are pesticides)

To date, organic carbon concentrations in subsurface soil at the facility have not been evaluated; therefore, in order to estimate K_d for organic compounds of concern, a conservative value of f_{OC} of 2 percent was assumed (0.02).

 ${\sf K_d}$ values for metals were obtained from a table compiled from the Battelle MEPAS model (attached). Soil pH values collected on site indicated that the subsurface soil

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pH ranged between pH 5 and 9. In order to maintain conservatism, the most conservative K_d value for a particular metal contaminant (i.e., smallest value) was used as input into the model.

Flux in the Aquifer (q_a)

The flux in the aquifer (q_a) equals the hydraulic conductivity (K) multiplied by the hydraulic gradient (i). Based on previous work conducted at the Station, a range of hydraulic conductivities (K) was estimated to be 2.2 to 36 feet per day (James M. Montgomery [JMM], 1990). Hydraulic gradients (i) were estimated from groundwater elevation measurements obtained during the Remedial Investigation/Feasibility Study (RI/FS) being conducted at the Station. The hydraulic gradient was estimated to be 0.008. In order to maintain conservatism in the estimate of q_a , the smallest value of K was used (i.e., 2.2 feet per day or 803 feet per year) to calculate q_a ; therefore, $q_a = 6.4$ feet per year.

Cross-Sectional Area of Flow per Unit Width of Aquifer (Aa)

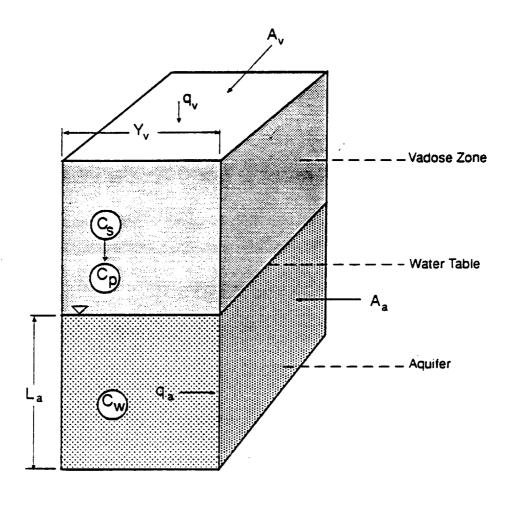
 A_a represents the cross-sectional area of flow per unit width in the water-bearing zone in the aquifer. A cross-sectional area of 10 feet by 1 foot was chosen for the model. These dimensions represent the estimate zone of influence around a 10-foot long well screen; therefore, $A_a=10 \ {\rm ft}^2$

Flux in the Vadose Zone (q_v)

The flux through the vadose zone (i.e., percolation) is a function of man-made hydraulic loading (i.e., irrigation), precipitation, evapo-transpiration, and runoff. The only hydraulic loading assumed for the model is precipitation. Since the model assumes that the vadose zone has reached field capacity in order to maintain equilibrium conditions between the source and the groundwater, all water derived from rainfall minus the evaporation theoretically could reach the groundwater table (assuming zero runoff). According to records obtained from the United States Bureau of Reclamation, a conservative value for net infiltration in the vadose zone (q_v) is 0.2 feet per year.

Cross-Sectional Area of the Vadose Zone per Unit Width of Site (A_V)

For the purposes of screening evaluation, a unit length of 1 foot was assumed for the length of the area of contamination in the vadose zone parallel to the direction of groundwater flow (y_y) ; therefore, $A_y = 1$ ft².



C_e = Contaminant Concentration in Soil (mg/kg)

 C_p = Contaminant Concentration in Vadose Zone Pore Water (mg/l)

Cw = Contaminant Concentration in Groundwater (mg/l)

q = Flux in Vadose Zone (ft/yr)

A = Cross Sectional Area of Vadose Zone (ft²)

Y, = Source Length Parallel to the Direction of Groundwater Flow (ft)

 $q_a = Flux in the Aquifer (ft/yr)$

A_a = Cross Sectional Area of Aquifer (ft²)

La = Length of Well Screen (ft)

Figure 1
SCEMATIC OF LEACHING PATHWAY MODEL
MCAS EL TORO
RCRA FACILITY ASSESSMENT

LEACHING PATHWAY REFERENCE CONCENTRATIONS MCAS EL TORO RCRA FACILITY ASSESSMENT

15-Jul-93

Compound	Screening Level Concentration (Cw) (mg/l)	Kd (ml/g)	Log Kow (ml/g)	Koc (ml/g)	foc (unitless)	Va /Vs (unitless)	Concentration in Soi Cw*(Kd)(Va /Vs) (mg/kg)
1 Aluminum	1.00	35,300.00	ria	na	na	320.00	1,000,000.00
2 Antimony	0.005	2.00	na	na	na	320.00	3.20
3 Arsenic	0.05	5.86	na	na	na	320.00	93.76
4 Barium	1.00	530.00	ria	na	na	320.00	169,600.00
5 Beryllium	0.001	70.00	ria	na	na	320.00	22.40
6 Cadmium	0.005	14.90	na	na	na	320.00	23.84
7 Chromium III	-	168.00	ria	na	na	320.00	#VALUE!
8 Chromium VI	-	16.80	ria	na	na	320.00	#VALUE!
9 Cobatt	-	1.94	ria	na ·	na	320.00	#VALUE!
10 Copper*	1.00	41.90	na liilii	diaco k no jimalisi	HUIL na sali	320.00	13,408.00
11 Iron*	0.30	15.00	na	na	na	320.00	1,440.00
12 Lead	0.015	234.00	na	na	na	320.00	1,123.20
13 Manganese*	0.05	70.00	na	na	na	320.00	1,120.00
14 Mercury	0.002	322.00	ria	na	na	320.00	206.08
15 Nickel	H1000 44 0.1 00 4 4 5 6	12.20	na ma	na	na	320.00	390.40
16 Selenium	0.01	5.91	ra	na	na	320.00	18.91
17 Silver	0.05	0.40	na	na	na	320.00	6.40
18 Thaillum	0.001	-	na	na	na	320.00	#VALUEI
19 Vanadlum #	0.02	50.00	na	na	na	320.00	320.00
20 Zinc*	5.00	12.70	na .	na	na	320.00	20.320.00
21 Cyanide	2	?	?	?	0.02	320.00	#VALUE!
22 1,1,1-Trichloroethane	0.2	1.82	2.17	91.20	0.02	320.00	116.74
23 1,1,2,2-Tetrachloroethane	0.001	4.48	2.56	223.87	0.02	320.00	1.433
24 1,1,2-Trichloroethane	0.032	1.38	2.05	69.18	0.02	320.00	14.17
25 1.1-Dichloroethane	0.01	0.76	1.79	38.02	0.02	320.00	1.217
26 1,1-Dichloroethylene	0.006	0.37	1.48	18.62	0.02	320.00	0.7150
27 1.2.4-Trichlorobenzene	0.009	115.09	3.97	5,754.40	0.02	320.00	331.45
28 1.2-Dichlorobenzene	0.60	29.58	3.38	1,479.11	0.02	320.00	5,679.78
29 1.2-Dichloroethane	0.0005	0.37	1.48	18.62	0.02	320.00	0.0596
30 1,2-Dichloropropane	0.005	1.21	1.99	60.26	0.02	320.00	1.93
31 1,2-Diphenylhydrazine (2)	-	10.74	2.94	537.03	0.02	320.00	#VALUEI
32 1,2-Trans-Dichloroethylene	0.01	0.37	1.48	18.62	0.02	320.00	1.1917
33 1,3-Dichlorobenzene (2) +	0.13	43.76	3.55	2,187.76	0.02	320.00	1,820.22
34 1,3-Dichloropropene (2)	0.0005	0.32	1.41	15.85	0.02	320.00	0.0507
35 1,4-Dichlorobenzene	0.005	29.58	3.38	1,479.11	0.02	320.00	47.33
36 2,4,6-Trichlorophenol		51.41	3.52	2,570.40	0.02	320.00	#VALUE!

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Compound	Screening Level Concentration (Cw) (mg/l)	Kd (ml/g)	Log Kow (rnl/g)	Koc (ml/g)	foc (unitless)	Va /Vs (unitless)	15-Jul-93 Concentration in Soil Cw*(Kd)(Va /Vs) (mg/kg)
37 2,4-Dichlorophenol (1)	0.02	6.93	2.75	346.74	0.02	320.00	44.38
38 2,4-Dimethylphenol++	0.4	2.46	2.30	123.03	0.02	320.00	314.95
39 2,4-Dinitrophenol (1)##	0.11	0.42	1.53	20.89	0.02	320.00	14.71
40 2.4-Dinitrotoluene~	0.001	1.18	1.98	58.88	0.02	320.00	0.3769
41 2,6-Dinitrotoluene	_	0.65	1.72	32.36	0.02	320.00	#VALUE!
42 2-Chloroethylvinyl Ether	?	#VALUE!	?	#VALUEI	0.02	320.00	#VALUEI
43 2-Chloronaphthalene (2)	-	144.89	4.07	7,244.36	0.02	320.00	#VALUE!
44 2-Chlorophenol (2)#	0.04	1.74	2.15	87.10	0.02	320.00	22.30
45 2-Methyl-4.6-Dinitrophenol	a itii na na mini	#VALUE	Latellacia? Haidiniili	#VALUE!	0.02	320.00	#VALUEL
46 2-Methylnaphthalene (2)	na	89.34	3.86	4,466.84	0.02	320.00	#VALUE!
47 2-Nitrophenol (2) ##	0.29	0.66	1.73	33.11	0.02	320.00	61.46
48 3,3'-Dichlorobenzidlne (2)~	0.0003	39.91	3.51	1,995.26	0.02	320.00	3.83
49 3-Methyl-4-Chlorophenol	-	#VALUEI	?	#VALUE!	0.02	320.00	#VALUE!
50 4,4'-DDD~	0.001	681.13	5.80	34,056.50	0.02	320.00	217.96
51 4,4'-DDE-	0.001	212.48	4.87	10,623.80	0.02	320.00	67.99
52 4.4'-DDT~	0.001	69.69	3.98	3,484.34	0.02	320.00	22.30
53 4-Bromophenyl Phenyl Ether	-	#VALUE!	?	#VALUE!	0.02	320.00	#VALUE!
54 4-Chlorophenyl Phenyl Ether	na	#VALUE!	?	#VALUEI	0.02	320.00	#VALUE!
55 4-Nitrophenol (2)#	177 Hite: 0.08 FTH 1111	11 min +4 1:0.87 (4) frituil		43.65	0.02	320.00	16.76
56 Acenaphthene	-	102.57	3.92	5,128.61	0.02	320.00	#VALUE!
57 Acenapthylene	-	67.77	3.74	3,388.44	0.02	320.00	#VALUE!
58 Acetone	na	0.01	- 1).24	0.35	0.02	320.00	#VALUE!
59 Acrolein (2)	-	0.01	4).09	0.50	0.02	320.00	#VALUEI
60 Acrylonitrile (1)#	0.0001	0.02	0.139	0.85	0.02	320.00	0.00054
61 Aldrin~	0.00002	20.68	3.01	1,033,81	0.02	320.00	0.13
62 alpha-BHC (2)~	0.00015	36.33	3.46	1,816.52	0.02	320.00	1.74
63 alpha-Endosulfan (2)	na	40.67	3.55	2,033.29	0.02	320.00	#VALUE!
64 Anthracene	-	347.56	4.45	17,378.01	0.02	320.00	#VALUE!
65 Asbestos	na na	#VALUEI	?	#VALUE!	0.02	320.00	#VALUE!
66 Benzene	0.001	1.59	2.11	79.43	0.02	320.00	0.5084
67 Benzo(a)anthracene	0.0001	5023.77	5.61	251,188.64	0.02	320.00	160.76
68 Benzo(a)pyrene	0.0002	11508.80	5.97	575,439.94	0.02	320.00	736.56
69 Benzo(b)fluoranthene	0.0002	14158.92	ó. 06	707,945.78	0.02	320.00	906.17
70 Benzo(g.h.i)perylene (2)	-	155249.42	7.10	7,762,471.17	0.02	320.00	#VALUE!
71 Benzo(k)fluoranthene (2)	0.0002	87303.17	6.85	4,365,158.32	0.02	320.00	5,587.40
72 Benzoic Acid (2)	na	0.80	1.81	39.81	0.02	320.00	#VALUE!

15-Jul-93

Compound	Screening Level Concentration (Cw) (mg/l)	(ml/g)	Log Kow (ml/g)	Koc (ml/g)	foc (unitless)	Va /Vs (unitless)	Concentration in Soil Cw*(Kd)(Va /Vs) (mg/kg)
73 beta-8HC (2)~	0.00025	55.62	3.80	2,780.99	0.02	320.00	4.45
74 beta-Endosulfan (2)	na	44.39	3.62	2,219.63	0.02	320.00	#VALUE!
75 Bezidine (1)~	0.0000005	· · · · · · · · · 0.80 · · · · ·	1,81	39.81	0.02	320.00	0.000127
76 Bis(2-chloroethoxyl)methane		#VALUE!	?	#VALUE!	0.02	320.00	#VALUEI
77 Bis(2-chloroethyl)ether (1)	-	0.47	1.58	23.44	0.02	320.00	#VALUEI
78 Bis(2-chloroisopropyl)ether (2)	_	4.69	2.58	234.42	0.02	320.00	#VALUE!
79 Bis(2-ethylhexyl)phthalate	0.004	117.77	3.98	5,888.44	0.02	320.00	150.74
80 Bromoform (1)	0.1	2.46	2.30	123.03	0.02	320.00	78.74
81 Butylbenzyl Phthalate (2)	0.10	138.37	4.05	6,918.31	0.02	320.00	4,427.72
82 Carbon Disuifide (2)	na	0.85	1.84	42.66	0.02	320.00	#VALUE!
83 Carbon Tetrachloride	0.0005	5.38	2.54	269.15	0.02	320.00	0.8613
84 Chlordane	0.0001	15.50	2.78	775.03	0.02	320.00	0.4960
85 Chlorobenzene	0.03	1996 198 .53 0 (1996)	2.84	426.58	0.02	320.00	81.90
86 Chlorodibromomethane	0.1	1.52	2.09	75.86	0.02	320.00	48.55
87 Chloroethane	na	#VALUEI	?	#VALUE!	0.02	320.00	#VALUE!
88 Chloroform	0.1	1.15	1.97	57.54	0.02	320.00	36.83
89 Chrysene	0.0002	1177.69	4.98	58,884.37	0.02	320.00	75.37
90 Di-n-butyl Phthalate minimit this	Hillitti rnatti Hillith	458.17	4.57	22,908.68	**************************************	320.00	W FVALUELI WHE
91 Di-n-octyl Phthalate	_	2046.59	5.22	102,329.30	0.02	320.00	#VALUE!
92 Dibenz(a,h)anthracene (2)	0.0003	11508.80	5.97	575,439.94	0.02	320.00	1,104.84
93 Dichlorobromomethane (2)#	1.00	0.94	1.88	46.77	0.02	320.00	299.35
94 Dieldrin~	0.00002	142.31	4.55	7,115.41	0.02	320.00	0.9108
95 Diethyl Phthalate	5.00	2.76	2.35	138.04	0.02	320.00	4417.23
96 Dimethyl Phthalate (1)		32.44	3.42	1,621.81	0.02	320.00	#VALUE!
97 Dioxin (2.3,7,8 TCDD)	0.00000005	17419.27	6.15	870,963.59	0.02	320.00	0.2787
98 Endosulfan	-	40.67	3.55	2.033.29	0.02	320.00	#VALUE!
99 Endosulfan Sulfate (2)#	0.074	46.67	3.66	2,333.67	0.02	320.00	1,105.23
100 Endrin	0.0002	140.54	4.54	7,026.84	0.02	320.00	8.99
101 Endrin Aldehyde (2)	na	530.19	5.60	26,509.41	0.02	320.00	#VALUE!
102 Ethylbenzene	0.68	17.42	3.15	870.96	0.02	320.00	3,790.43
103 Flouranthene	-	1954.47	5.20	97,723.72	0.02	320.00	#VALUE!
104 Fluorene	-	186.65	4.18	9.332.54	0.02	320.00	#VALUE!
105 gamma-BHC (2)	0.0002	9.63	2.40	481.50	0.02	320.00	0.62
106 Halomethanes	0.1	#VALUE!	?	#VALUE!	• 0.02	320.00	#VALUEI
107 Heptachlor	0.00001	100.21	4.27	5,010.49	0.02	320.00	0.3207
108 Heptachlor Epoxide (2)	0.00001	412.70	5.40	20,634.79	0.02	320.00	1.3206

	Compound	Screening Level Concentration (Cw)	Kd	Log Kow	Koc	foc	Va /Vs	15-Jul-93 Concentration in Soil Cw*(Kd)(Va /Vs)
		(mg/l)	(ml/g)	(ml/g)	(ml/g)	(unitless)	(unifless)	(mg/kg)
	Hexachlorobenzene	0.001	166.35	4.13	8,317.64	0.02	320.00	53.23
110	Hexachlorobutadiene	0.001	67.77	3.74	3,388.44	0.02	320.00	21.69
	Hexachlorocyclopentadiene	0.050	6.78	274	338.84	0.02	320.00	108.43
	Hexachloroethane (1)#	0.001	26.98	3 34	1,348.96	0.02	320.00	8.63
113	Indeno(1,2,3-cd)pyrene (2)	0.0004	11508.80	5.97	575,439.94	0.02	320.00	1,473.13
114	Isophorone (2)#	0.10	0.58	1.67	28.84	0.02	320.00	18.46
115	Methoxychlor (2)	0.04	33.70	3.40	1,685.00	0.02	320.00	431.36
	Methyl Bromide (2)#	0.01	0.12	1.00	6.17	0.02	320.00	0.3946
117	Methyl Chloride (2)#	0.003	0.10	0.90	4.90	0.02	320.00	0.0940
118	Methylene Chloride	0.005	0.22	1.25	10.96	0.02	320.00	0.3509
119	N-Nitrosodi-n-propylamine (2)	na	0.25	1.31	12.59	0.02	320.00	#VALUEI
120	N-Nitrosodimethylamine (2)~	0.00002	0.01	0.06		0.02	320.00	0.000091
121	N-Nitrosodiphenylamine~	0.04	4.48	2.56	223.87	0.02	320.00	57.31
122	Naphthalene#	0.02	28.91	3.37	1,445.44	0.02	320.00	185.02
123	Nitrobenzene (1)	-	0.76	1.79	38.02	0.02	320.00	#VALUE!
	PBC-1242~	0.00001	63.04	3.90	3,152.10	0.02	320.00	0.2017
	PCB-1016 didlimate introduction			3.90	3.152/10	1444 O.02 11 1	320.00 4 44	10.09 William
	PCB-1221	0.0005	63.04	3.90	3,152.10	0.02	320.00	10.09
	PCB-1232	0.0005	63.04	3.90	3,152.10	0.02	320.00	10.09
	PCB-1248	0.0005	63.04	3.90	3,152.10	0.02	320.00	10.09
129 F	PCB-1254	0.0005	908.55	6.03	45,427.62	0.02	320.00	145.37
130 F	PCB-1260	0.0005	00.00 #	3.90	3,152.10	0.02	320.00	10.09
131 F	Pentachlorophenol	0.001	1261.91	5.01	63,095.73	0.02	320.00	403.81
132 F	Phenanthrene	-	355.66	4.46	17,782.79	0.02	320.00	#VALUE!
133 F	Phenol+	0.005	0.36	1.46	17.78	0.02	320.00	0.5690
134 F	Pyrene (1)	-	1517.16	5.09	75,857.76	0.02	320.00	#VALUEI
135	TCDD Equivalents	-	#VALUE!	?	#VALUE!	0.02	320.00	#VALUEI
136 1	fetrachloroethylene (1)	0.005	9.35	2.88	467.74	0.02	320.00	14.97
137	[oluene	1.00	6.04	2.59	302.00	0.02	320.00	1,932.77
138 1	oxaphene	0.003	29.73	3.30	1,486.62	0.02	320.00	28.54
	(ributyItin (3)	-	67.40	?	3,370.00	0.02	320.00	#VALUE!
	Inchloroethylene	0.005	2.40	2.29	120.23	0.02	320.00	3.85
141)	(ylene	1.75	23.73	3.12	1,186.53	0.02	320.00	13,289,18
_	Vinyl Chloride	0.0005	0.05	0.60	2.45	0.02	320.00	0.0079

15-Jul-93

Compound	Screening Level	Kd	Log Kow	Koc	foc	Va /Vs	Concentration in Soil
	Concentration (Cw)						Cw*(Kd)(Va /Vs)
	(mg/l)	(ml/g)	(mil/g)	(ml/g)	(unitless)	(unitless)	(mg/kg)

Notes:

Except where noted, all Kow values entered in this table were obtained from Octanol-Water Partition Coefficient Issue Paper dated August 20, 1990

- 1) Kow value obtained from Ney 1990
- ?- Value not available

#Valuel means a value was missing, and therefore operation could not be completed.

nd- not applicable

- 2) Kow value from Montgomery and Welkom 1989
- 3) Koc value obtained from Cardwell 1988
- * Secondary MCL
- + California State Action Levels Department of Health Services Toxicity
- ++ California State Action Levels Department of Health Services Taste & Odor
- # Health Advisories or Suggested No-Adverse-Response Levels (SNARLs) EPA
- ## Health Advisories or Suggested No-Adverse-Response Levels (SNARLs) NAS
- ~ California Prop. 65 Regulatory Level as a Water Quality Criterion

4.0 SORPTION DISTRIBUTION COEFFICIENT DATA

As a solution (groundwater) migrates through the partially saturated and/or saturated zone, geochemical considerations determine the extent to which a particular chemical in the solution will be retarded relative to the groundwater velocity. Geochemical mechanisms such as precipitation/dissolution and adsorption/desorption can increase or decrease the concentrations of various groundwater chemicals, depending upon the particular solution/sediment interactions that occur. The only geochemical mechanism considered in this study was adsorption. Adsorption was incorporated into the MEPAS methodology through the use of a distribution coefficient (K_d). As commonly determined and used, the K_d is a "bulk" chemical parameter that often includes the effects of precipitation/dissolution and adsorption/desorption.

The groundwater transport model of MEPAS requires estimates of the equilibrium coefficient (also referred to as the distribution coefficient or K_d) for each pollutant in soil. This section describes the data base that is accessed by the MEPAS shell to provide suggested values for the sorption distribution coefficients of inorganic pollutants and radionuclides. (Values for organic pollutants are also provided in the chemical data base, as described in Section 2.2.6.) Details of justifications and references for sorption distribution coefficients are given, along with the supporting rationale.

Because the distribution coefficient is dependent on soil pH and soil characteristics, the distribution coefficient values in the data base have been determined for a three-dimensional matrix that addresses both the effects of pH and the clay, aluminum and iron oxyhydroxide, and organic matter content of the sediments. In evaluating distribution coefficient values, compilations were made of

- K_d values given as distribution coefficients in the literature
- Selected Langmuir and Freundlich adsorption constants that were converted to $K_{\rm d}$ values.

The effect of the pH was taken into account by dividing measurements of the distribution coefficients into three pH regimes. These pH regimes

encompassed distribution coefficients recorded in environments with pH values less than or equal to 5, distribution coefficients measured at pH values between 5 and 9, and coefficients determined at pH values greater than or equal to 9. Few data in the literature address adsorption at pH values greater than 9. If no data were available for a given element in the high-pH regime, very conservative estimates (i.e., small values) of adsorption were made based on soil chemistry and the available literature.

The effect of the adsorbent on the distribution coefficient was taken into account by dividing the total percent-by-weight composition of the clay, iron and aluminum oxyhydroxide, and organic matter contents into three categories. The categories are 1) those sediments whose total weight percent (of the aforementioned constituents) is less than 10, those sediments whose total weight percent is greater than or equal to 10 and less than 30, and those sediments whose total weight percent totals 30 or more. The three categories correspond roughly to sandy soils (<10%), loamy soils (10-30%), and clayey soils (>30%).

The numerical values of distribution coefficients for each inorganic and radionuclide constituent are summarized in Table 4.1. A value is given for each of the nine possible combinations of pH and soil content.

Distribution coefficients are dependent on many factors. The selected scheme of considering pH and soil content is expected to provide a reasonable estimate of distribution coefficients for most applications of MEPAS. The total dissolved solids content of the solute can also affect distribution coefficients; however, the total dissolved solids content was not considered in this study because the solids content tends not to vary significantly in natural fresh-water environments. This lack of variability is a result of the concentrations of the background electrolytes. In addition, the nature of the chemical constituents that determine the total dissolved solids content itself.

Concentrations of dissolved organic and inorganic carbon may also impact the values of distribution coefficients through aqueous complexation reactions. The complexation of inorganic and radioactive constituents with

IABLE 4.1. Summary of Distribution Coefficient Values Used in MEPAS for Inorganic Constituents

		pli lange and Soli Composition(a)								
			<u> 테 19</u>			EU 2 . Y.			01_15	
P Name	Constituent Name	-10X	10 - 10x	130%	<10x	10 · 30X	£30X	<10X	10 · 30X	_ \$ 30x
C252	Actinium-225	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	4.0	6.0
C227	Actinium-227	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	4.0	6.6
7429905	Alustona	353.0	353.0	353.0	35,300.0	35,300.0	35,300.0	3,980.0	3,980.0	44,600.0
W241	Auer Ic lust-241	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	1,000.0
M242	Americius 262	8.2	20.0	100.0	0.50	200.0	1,000.0	0.58	200.0	1,000.0
H242H	Americian 242H	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200. 0	1,000.0
H243	Americias-263	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	1,000.0
7440360	Ant laiony	0.0	1.0	1.0	2.0	6.0	15.9	2.0	5.0	15.9
B125	Ant Impriy 125	0.0	1.0	1.0	2.0	6.0	15.9	2.0	5.0	15.9
546011	Araenic	0.4	2.0	2.0	5.84	19.4	19.4	5.84	19.2	21.5
2001244	Asbestos (Croc)	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.85	1.65
1440193	Barium	530.0	2.600.6	14,000.0	530.0	2,800.0	14.000.0	31.0	280.0	1,400.0
1440417	Baryli (um	7.0	140.0	800.0	70.0	1,400.0	0.000.0	7.0	140.0	800.0
DE 7	Beryltlin-7	7.0	140.0	800.0	70.0	1,400.0	8,000.0	7.0	140.0	800.0
1303964	Durate (As Na Salt)	0.0	0.0	0.0	0,0	0,0	0.0	0.0	0.0	0.0
744428	Baron	0.19	1.3	1.3	0.19	1.3	1.3	0.19	1.3	1.3
1440439	Cadalus	3.0	42.9	100.0	16.9	423.0	547.0	3.6	42.9	100.0
778543	Calcium Hypochlorita	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1305744	Catchia Onlile	70.0	1,400.0	8,000.0	70.0	1,400.0	8,000.0	7.0	140.0	800.0
: 14	Carbon-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CEHENT D	Ceaucht Dust	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
CE141	Carlus-141	100.0	250.0	2,000.0	226.0	530.0	4,600.0	3.0	4.0	4.0
CE 144	Cortus-144	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	4.0	6.0
E\$136	Castus-136	51.0	249.0	270.0	51.0	249.0	270.0	10.0	24.9	27.0
CS 135	Cealus-135	51.0	249.0	270.0	51.0	249.0	270.0	10.0	24.9	27.0
C\$137	Caulian-137+D	51.0	249.0	270.0	51.0	249.0	270,0	10.0	24.9	27.0
7775099	Chiorate (As Na Salt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CA-111	Chronius III	10.0	10.0	79.0	166.0	545.0	3,600.0	10.0	10.0	79.0
7440473	Chronius VI	1.0	1.0	7.9	16.8	56.5	360.0	1.0	1.0	7.9
7410484	Coluit	1.94	8.81	200.0	1.94	4.61	200.0	0.2	0.9	0.2
(छ)	Colul 1-57	1.91	0.81	200.0	1.94	0.41	200.0	0.2	0.9	0.2
6090	Cobalt-60	1.94	8.81	200.0	1.94	0.01	200.0	0.2	0.9	0.2
7440508	Соррег	4.19	9.2	33.6	41.9	92.2	334.0	4.19	9.2	33.6
EH545	Curtim-242	8.2	20.0	100.0	62.0	200.0	1,000.0	82.0	200.0	1,000.0
EH243	Curlina-243	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	1,000.0
CHS44	Curlus-244	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	1,000.0
CHS42	Curlus-245	8.2	20.0	100.0	0.50	200.0	1,000.0	82.0	200.0	1,000.0
EU152	Europlus-152	100.0	250.0	2,000.0	228.0	530.0	4.600.0	3.0	۵.۵	6.0
EUISC	Europlus-154	100.0	250.0	2,000.0	220.0	530.0	4.600.0	3.0	۵.0	6.0
EU155	Europhia-155	100.0	250.0	2,000.0	220.0	538.0	4,600.0	3.0	6.0	4.0
7782414	Flouride	0.0	0.0	0.0	0.0	0.0	0.0	ā.o	0.0	0.0
7669393	liydrogen fluorida	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0
1129	Iodina · 129	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1167	1001110.112	V. U	v.u	U.U	U. U	J.U	u.u	9.0	v. v	U.1

IABLE 4.1. (contd)

				·····	tal Baras s	ul foll co	mosttien(a)		·	·····
ID Name	Constituent Name	410X	04 19 10 - 30X	1301		한 2 · 8	\$30X	-100		
F TEST	FRE 11 FREIT BESS	_3124_	15 157	F104		10 - 304	- 6307	~10x	10 · 30X	_130X
131	ladine-131	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135	todine-135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5438318	tron	1.5	1.5	1.5	15.0	15.0	15.0	10.0	10.0	12.9
205	Krypton-85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
439921	Lead	234.0	597.0	1,830.0	234.0	597.0	1,630.0	10,0	10.0	12.1
11714	tend Oxide	234.6	597.0	1,630.0	234.0	597.0	1,630.0	10.0	10.0	12.1
#210	Land-210	234.0	597.0	1,830.0	234.0	597.0	1,830.0	10.0	10.0	12.1
8212	1 a m/1 - 2 1 2	234.0	597.0	1,830.0	234.0	597.0	1,830.0	10.0	10.0	12.1
310625	tithius Hydronide	4.4	0.2	0.6	0.0	0.2	0.8	0.0	0.0	0.0
1447418	Lithium ton	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0
786303	Hagnes Iusa	7.0	140.0	800.0	70.0	1,400.0	8,000.0	7.0	140.0	600.0
1139965	Nationates	14.5	25.3	34.9	16.5	25.3	34.9	1.5	2.5	4.0
H54	Hangarieta-54	14.5	25.3	34.9	14.5	25.3	34.9	1.5	2.5	4.0
1439974	Heierich	322.0	580.0	5,280.4	322.0	580.0	5,240.0	30.0	60.0	500.0
7639987	Hal ylxlenum	0.0	۵.0	0.0	40.0	120.0	280.0	100.0	300.0	700.0
18537	Neptunius 237	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1440050	Hickel	1.22	5.84	45.0	12.2	58.6	650.0	1.2	5.66	65.0
1156	Michal-36	1.22	5.86	45.0	12.2	58.4	650.0	1.2	5.86	45.0
1163	Hickot-43	1.22	5.84	45.0	12.2	58.6	650.0	1.2	5.86	45.0
HB93H	Highira-93H	5.0	100.0	10.0	50.0	100.0	100.0	50.0	100.0	100.0
MB95	Michium-95	5.0	100.0	10.0	50.0	100.0	100.0	50.0	100.0	100.0
14797558	Hitrate	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
7697372	Nitric Acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10105440	Mittoden Djorige	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PD107	Palladium-107	0.4	4.0	40.0	0.4	4.0	40.0	0.4	4.0	39.3
PAPFIBER	Paper Fiber	1.65	1.65	1.61	1.65	1.65	1.65	1.65	1.65	1.65
7601549	Phosphate Ion	5.0	5.0	5.0	50.0	50.0	50.0	100.0	100.0	100.0
P32 Pu23 a	Phosphorus-32 Plutonius-23A	5.0	5.0	5.0	50.0	50.0	50.0	100.6	100.0	100.0
5053 8	Plutonica: 239	10.0 10.0	10.0 10.0	14.0 14.0	10.0	100.0	250.0	4.0	4.0	(3.0
Ln540	Plutonium-240	10.0	10.0	11.0	10. 6 10. 0	100.0	250.0	4.0	4.0	41.0
6054 1	Plutonica 241	10.0	10.0	14.0		100.0	250.0	4.0	4.0	43.0
PO210	Polonius-210	5.9	14.9	16.9	10.0 5.9	100.0	250.0	4.0	4.0	43.0
1310543	Potassius Hydroxide	0.0	0.2	0.4	3. y 0.0	14.9	14.9	5.91	14.9	14.9
7447407	Potassius Ion	0.0	0.2	0.8	0.0	0.2	0.8	0.0	4.0	0.0
x (0	Potassium-40	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0
R40 PA231	Protectinius-231	0.0	5.0	50.0	0.0 0.0	0.2	0.8	0.0	0.0	0.0
PA231	Protectinica-231	0.0	3.0 5.0	50.0 50.0	0.u	50.0 50.0	500.0	0.0	5.0	50.0
BY553 LVE31	Andlus 221	24.3	100.0	124.0	26.3	100.0	500.0	0.4	5.0	50.0
BA225	Radius-225	24.3	100.0	124.0	24.3 24.3	100.0	124.0 124.6	2.43 2.43	100.0 100.0	12.4
BASSA	Radius-226	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	124.0 12.4
RU103	Authentica: 103	27.0	50.0	50.0	274.0	351.0	490.0	24.0	24.0	24.0
RULOS	Authenlus: 106	27.0	50.0	50.0	274.0	351.0	490.0	24.0	24.0	26.0

4.4

IADLE 1.1. (contd)

		rit Rense and Soil Composition(a)									
			면 1 9			FI 5 A			<u> 엔 15</u>		
10 Herr	_Court Intut Name	103	19 - 304	Flox	410X	10 · 30%	_130X	1103	10 - 30%	_ \$ 10X	
SH151	Samerica-151	100.0	250.0	2,000.0	224.0	536.0	4,600.0	3.0	4.0	۵.0	
7782492	Selenius	5.9	14.9	14.9	5.91	14.9	14.9	5.91	14.9	14.9	
\$£79	Salentin-79	5.9	14.9	14.9	5.91	14.9	14.9	5.91	14.9	14.9	
6834920	Silicoto Ian	2.0	2.0	2.0	5.0	5.0	5.0	4.0	4.0	4.0	
7440554	Sliver	0.4	4.0	40.0	0.4	5.0	40.0	9.4	4.0		
1310732	Sodiem Hydroxide	0.0	0.2	0.8	0.0	0,2	0.4	8.0	0.0	0.0	
7647145	Soulin Ion	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	
NASS	Sodius-22	0.0	0.2	0.4	0.0	0.2	0.8	0.0	0.0	0.0	
10476854	Strontim ton	24.3	100.0	124.0	24.3	100.0	124.0	2.34	100.0	12.4	
6869	Stront lus: 89	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	12.4	
SR90	Strontius 90	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	12.4	
12008798	Sulfate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7661939	Sulfuria Acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
\$35	Sulphur - 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1099	Tachnat fua: 99	3.0	20.0	20.0	3.0	20.0	20.0	3.0	20.0	30.0	
7440200	That i iva	0.0	0.2	0.8	0.0	0.2	0.4	6.0	0.0	0.0	
14224	Thor lue: 228	40.0	60.0	100.0	100.0	500.0	2,700.0	40.0	40.0	100.0	
18229	Thortus-229	40.0	40.0	100.0	100.0	500.0	2.700.0	40.0	40.0	100.0	
1 # 5 30	Thortus-230	40.0	40.0	100.0	100.0	500.0	2,700. 0	40.0	40.0	100.0	
14232	thor lun-232	40.0	40.0	100.0	100.0	500.0	2,700.0	40.0	40.0	100.4	
14524	Ther lua- 236	40.0	40.0	100.0	100.0	500.0	2,700.0	40.0	40.0	100.0	
7440315	Iln:	2.5	5.0	5.0	5.0	10.0	10.0	2.5	5.0	5.0	
SH124	11n-124	2.5	5.0	5.0	5.0	10.0	10.0	2.5	5.0	5.0	
M3	Tritius	0.0	0.0	٥.٥	0.0	0.0	0.4	8.0	0.0	8.0	
13536860	uo _z r _z	0.4	5.0	50.0	0.0	50.0	500.0	0.4	5.0	50.0	
7440411	ปกลักใน	0.4	5.0	50.0	0.0	50.0	500.0	8.0	5.0	50.0	
U233	Uranium-233	0.0	5.0	50.0	0.0	50.0	500. 0	0.0	5.0	50.0	
N534	Uranium-234	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	
u235	Uranjua-235	0.0	5.0	50,0	۵.۵	50.0	500. 0	4.0	5.0	50.0	
U234	Dranlim-316	0.0	5.0	50.0	0.0	50,0	500.0	0.0	5.0	50.0	
N539	Uranlus 234	0.0	5.0	50.0	0.0	50.0	500. 0	0.0	5.0	50.0	
U239	Uranium 219	0.0	5.0	50.0	0.0	50.0	500. 0	0.0	5.0	50.0	
7440955	Vanadius	5.0	100.0	10.0	50.0	100.0	100.0	50.0	100.0	100.0	
190	Attrium-80	100.0	250.0	2,000.0	228.0	536.0	4,600.0	3.0	4.0	4.0	
191	Yttr lun-91	100.0	250.0	2,000.0	228.0	534.0	4,600.0	3.0	4.0	4.0	
744457	21nc Calipounds	12.7	143.0	1.460.0	12.7_	939.0	1,440.0	3.4	280.0	280.0	
3H45	21nc-45	12.7	163.0	1,460.0	12.7	939.0	1,460.0	3.0	280.0	280.0	
3492	Siconim	5.0	50.0	100.0	50.0	500.0	1,000.0	50.0	500.0	1,000.0	
1440472	Hiteonius	5.0	50.0	100.0	50.0	500.0	1,000.0	50.0	500.0	1,000.0	
2893H	21rconton-93M	5.0	50.0	100.0	50.0	500.0	1,000.0	50.0	500. 0	1,000.0	

⁽a) Soli composition is total weight percent of clay, organic matter, and from and aluminum oxyhydroxides.

organic material can significantly increase the mobility of a given element. Such increased mobility would be reflected in a smaller distribution coefficient.

If the migrating solution contains significant quantities of organic material, it is recommended that the $K_{\rm d}$ values be set to zero. This extremely conservative estimate accounts for the fact that the movement of organic materials may be water coincident (i.e., have a $K_{\rm d}$ of 0.0). Complexation reactions between organic and inorganic carbon and the inorganic and radioactive constituents were not considered in the distribution coefficient matrix because of the dearth of published information.

The distribution coefficients documented in this section should not be used if:

- Distribution coefficients have been determined for that particular waste unit or for a facility where several waste units have similar characteristics, or
- Inorganic and/or radioactive constituents are mixed with organically complexed wastes (the distribution coefficients should be set to zero).

If onsite or experimental K_d values have been determined using the waste and soils at the waste unit, use those K_d values rather than the values suggested here.

Several caveats should be mentioned regarding the distribution coefficients. Conservative values have been chosen for each value. If several K_d values were obtained for a given chemical/soil-type interaction, the most conservative (i.e., the smallest) was usually selected for inclusion in the matrix. This does not mean that for any specific case the cited K_d will always be lower than what might actually be measured. The literature cited is not exhaustive, and at a particular site conditions could be present that would lead to even lower K_d values.

The values for K_d selected are representative of commonly occurring environments. When data for adsorption onto pure minerals and soils were found, preference in selection was given to experiments that considered adsorption onto soil material. Several of the distribution coefficients

mentioned in the sections that follow were originally reported in the literature as Langmuir or Freundlich coefficients. The Freundlich and Langmuir coefficients were converted to distribution coefficients as described in subsection 4.1. It should also be noted that all values are described as distribution coefficients, regardless of the form in which they were originally reported. All distribution coefficients reported in this document have units of ml/g.

4.1 THEORY SUPPORTING PARAMETERS

Adsorption is a process by which molecular or ionic species of a substance become concentrated at the solid/solution interface as a result of physico-chemical interactions between the adsorbing species and the solid surface. Adsorption of a solute molecule on the surface of a solid can involve removing the solute molecule from the solution, removing solvent from the solid surface, and attaching the solute to the surface of the solid. The material adsorbed is called the adsorbate, and the material at whose interface adsorption occurs is called the adsorbent. Adsorption models conveniently describe the adsorption of solutes by solids at constant temperature (hence the label "isotherm") in quantitative terms. Examples of adsorption models that can describe adsorption onto solid surfaces include 1) a distribution coefficient, Kd, 2) a Langmuir isotherm; 3) a Freundlich isotherm, 4) an ion exchange model; 5) a constant-capacitance surface complexation model; and 6) a triple-layer surface complexation model. For the MEPAS methodology, only the distribution coefficient (K_d) was used to reduce the mobility of chemical solutes relative to the migrating water. Constantcapacitance and triple-layer surface complexation models were developed for pure hydrous oxide adsorbents. Because the requisite input parameters are very complex and because the constants have not yet been developed for many of the chemicals and adsorbents of interest, surface complexation models were not considered in this study. Ion exchange coefficients were not addressed because they are usually developed for the macroscopic constituents of an aqueous system. However, applicable Freundlich and Langmuir isotherms were considered by converting the Freundlich and Langmuir coefficients to linear distribution coefficients (Kds).

The $K_{\rm d}$ is defined as the ratio of the mass of adsorbed species to the concentration of the species remaining in solution. The $K_{\rm d}$ is described by the following expression:

$$K_{d} = S/C \tag{1}$$

where S is the concentration of the chemical on the solid (per gram of adsorbent) and C is the concentration of the chemical in solution (per milliliter of solution). Some data represented in the form of other adsorption algorithms (e.g., Langmuir and Freundlich) were used after being converted to a distribution coefficient (K_d) . The Langmuir isotherm has an advantage over the K_d for considering a mass balance on surface adsorption sites. The Langmuir isotherm is described by the equation

$$S = K_{L} A_{m} C / (1 + K_{L} C)$$
 (2)

in which $K_{\underline{L}}$ is the Langmuir adsorption constant and $A_{\underline{m}}$ is the maximum number of sites available for adsorption.

At low adsorbate concentrations, the bottom term in the Langmuir isotherm approaches 1, and the amount adsorbed is proportional to the concentration of the adsorbate. Thus, at low concentrations, the Langmuir equation approaches a linear adsorption isotherm and the term K_L A_m may be equated with the constant (K_d) in Equation 1.

The Freundlich isotherm was derived empirically from adsorption data for dilute solutions. Although the Freundlich equation is empirical, it has come to be interpreted as implying that the energy of adsorption decreases logarithmically as the fraction of surface sites covered increases. The Freundlich isotherm is represented by the equation

$$S = K_F C^{1/n}$$
 (3)

where K_F is the Freundlich adsorption constant and n is an empirically determined constant dependent upon the specific adsorbate/adsorbent pair.

When n approaches 1, the Freundlich adsorption constant (K_F) is approximately equivalent to the distribution coefficient (K_d) .

4.2 SORPTION DISTRIBUTION VALUE JUSTIFICATION

This section describes the process for determining each constituent's equilibrium coefficient. Each constituent is described below, along with the justification for the equilibrium coefficients assigned to it (summarized in Table 4.1). The discussion refers to "tiers" and "cells" of a 3-by-3 matrix of K_d values for the nine possible combinations of pH and soil type. The tiers and cells are defined as follows:

```
Tier 1: pH ≤5

Cell 1: pH ≤5 and soil composition <10%

Cell 2: pH ≤5 and soil composition 10-30%

Cell 3: pH ≤5 and soil composition ≥30%

Tier 2: pH 5-9
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Cell 4: pH 5-9 and soil composition <10% Cell 5: pH 5-9 and soil composition 10-30% Cell 6: pH 5-9 and soil composition ≥30%

. Tier 3: pH 29

Cell 7: pH ≥9 and soil composition <10% Cell 8: pH ≥9 and soil composition 10-30% Cell 9: pH ≥9 and soil composition ≥30%

These tier and cell representations will be used throughout the text.

OCTANOL-WATER PARTITION COEFFICIENT ISSUE PAPER

Contract No. 68-W8-0098

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Work Assignment Manager: Steve Caldwell

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OCTANOL-WATER PARTITION COEFFICIENT-ISSUE PAPER

INTRODUCTION

The octanol-water partition coefficient ($K_{\rm OW}$ or P) is defined as the measure of the partitioned extent of a substance between water and octanol at equilibrium. The $K_{\rm OW}$ is determined by the ratio between the concentration of a substance in octanol divided by the concentration in water. As $K_{\rm OW}$ increases for a series of substances, solubility in water decreases.

Kow IN THE REVISED HRS

 $K_{\rm OW}$ is used in two ways in the Revised Hazard Ranking System (HRS). In assigning a value for the persistence factor to a hazardous substance, the Log $K_{\rm OW}$ of the hazardous substance accounts for sorption to sediments. $K_{\rm OW}$ is also used in the data hierarchy in assigning a value for the bioaccumulation potential factor to each hazardous substance. If bioconcentration data are not available for a hazardous substance. Log $K_{\rm OW}$ data are used to assign a value for the bioaccumulation potential factor to organic substances.

The following table presents Log $K_{\rm ow}$ values for 100 organic chemicals that are frequently found at NPL sites. Many of the chemicals have more than one Log $K_{\rm ow}$ value. For Revised HRS scoring purposes, it is recommended that the highest Log $K_{\rm ow}$ value be used.

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		LOG K _{OW} VALUES
Chemical Name	Log K _{ow}	Reference
1,2-dichlorobenzene	3.38	Chiou, C.T., et al. 1983. Partition Equilibria of Nonionic Organic Compounds Between Soil Organi Matter and Water. Environ. Sci. Technol. 17:227-31.
1,2 dichlorobenzene	3.38	Hansch, C. and A.J. Leo. 1935. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.
1,2 dichlorobenzene	3.38	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
1,2 dichlorocthane	1.48	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.
1,2 dichloroethane	1.48	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.
1,2-dichloroethane	1.48	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. H. EPA-440/4-79-029B.
1,2-dichloroethane	1.48	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
1,1-dichloroethane	1.79	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.
1,1 dichloroethane	1.79	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
1,1-dichloroethylene	1.48	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
1,1-dichloroethylene	2.13	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.
1,1-dichloroethylene	2.13	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
1,2 dichloroethylene, cis	1.86	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
1,2 dichloroethylene, trans	1.48	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
1,2-dichloropropane	2.28	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
1,2-dichloropropane	2.00	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.
1,2-dichloropropane	1.99	SRC, 1988. Syracuse Research Corporation Calculated Values.

WDCR484/131.51/2 (continued)

LOG K _{OW} VALUES							
Chemical Name	Log K _{ow}	Reference					
1,1,1-trichloroethane	2.17	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.					
1,1,1-trichloroethane	2.49	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.					
1,1,1 trichloroethane	2.49	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.					
1,1,2-trichloroethane	2.17	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.					
1,1,2-trichloroethane	2.05	SRC 1988. Syracuse Research Corporation Calculated Values.					
1,1,2-trichloro 1,2,2-trifluoroethane	3.16	McDuffie, B., 1981. Estimation of Octanol/Water Partition Coefficients for Organic Pollutants Using Reverse-Phase HPLC. Chemosphere. 10:73-83.					
1,1,2-trichloro-1,2,2-trifluoroethane	3.16	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.					
1,1,2,2 tetrachloroethane	2.56	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.					
1,1,2,2-tetrachloroethane	2.39	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.					
1,1,2,2 tetrachloroethane	2.39	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.					
1,2,4-trichlorobenzene	4.02	Chiou, C.T., et al. 1983. Partition Equilibria of Nonionic Organic Compounds Between Soil Organic Matter and Water. Environ Sci. Technol. 17:227-31.					
1,2,4 trichlorobenzene	4.26	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.					
1,2,4 trichlorobenzene	3.98	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.					
1,2,4 trichlorobenzene	4.12	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.					
1,2,4 trichlorobenzene	3.97	Wataral, H., Tanaka, M., and Suzuki, N., 1982. Determination of Partition Coefficient of Halobenzenes in Heptane Water and 1-Octobal Water Systems and Comparison with the Scaled Particle Calculation. Anal. Chem. 54:702-5.					
1,2,4 trichlorobenzene	4.12	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.					
1,2 dichlorobenzene	3 38	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.					

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	LOG K _{OW} VALUES								
Chemical Name	Log Kow	Reference							
1,4-dichlorobenzene	3.38	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.							
1,4-dichlorobenzene	3.39	Chiou, C.T., et al. 1983. Partition Equilibria of Nonionic Organic Compounds Between Soil Organi Matter and Water. Environ. Sci. and Technol. 17:227-31.							
1,4 dichlorobenzene	3.39	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College							
1,4-dichtorobenzene	3.52	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College							
1,4 dichlorobenzene	3.39	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.							
2,4-dichlorophenoxyacetic acid	2.81	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.							
2,4 dichlorophenoxyacetic acid	2.81	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.							
2,4-dichlorophenoxyacetic acid	2.81	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College							
2,4 dimethylphenol	2.50	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.							
2,4 dimethylphenol	2.30	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College							
2,4-dimethylphenol	2.30	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.							
2,4 dinitrotoluene	2.01	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.							
2,4-dinitrotoluene	1.98	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.							
2,4 dinitrotolucne	1.98	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College							
2,4 dinitrotoluene	1.98	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.							
2,6-dinitrotoluene	1.72	SRC, 1988. Syracuse Research Corporation Calculated Values.							
2,6-dinitrotoluene	2.05	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.							

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LOG K _{OW} VALUES								
Chemical Name	Log K _{om}	Reference						
2,4,5 trichlorophenoxyacetic acid	3 13	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
2,4,5 trjehlorophenoxyacetic acid	3.13	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.						
2,3,5-trichlorophenol	4.56	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
2,3,6-trichlorophenol	3.72	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
2,4,5-trichlorophenol	3.72	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.						
2,4,5 trichlorophenol	3.72	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
2,4,6-trichlorophenol	3.69	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.						
2,4,6-trichlorophenol	3 62	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
3,4,5 trichlorophenol	4.01	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
Acenapthylene	4.07	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.						
Acenapthylene	3.74	USEPA. 1981. Water Quality Criteria Document: Polynuclear Aromatic Hydrocarbons. PB81-117 806. Washington, D.C.						
Acenapthene	3.92	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.						
Acenapthene	3.92	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
Acetone	-0.24	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.						
Accione	-0.24	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						
Acctophenone	1.59	Hassett, J.J., Means, J.C., Banwart, W.L., and Wood, S.G., 1980. Sorption Properties of Sediments and Energy-Related Pollutants. EPA 600/3-80-041. Athens, Georgia; U.S. Environmental Protection Agency, p. 133.						
Acetophenone	1.59	Khan, A., Hassett, J.T., Banwart, W.L., Means, J.C., and Woods, S.C., 1979. Sorption of Acetophenone by Sediments and Soils. Soil Sci., 128:297-302.						
Acctophenone	1.58	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.						
Acctophenone	1.73	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.						

		LOG K _{OW} VALUES	
Chemical Name	Log Kow	Reference	
Aldrin	3.01	Lu, Py, & Metcalf. 1975. Environmental Fate and Biodegradability of Benzene Derivatives as Studice in a Model Aquatic Ecosystem Environmental Health Perspective 10:269-84	
Aniline	0.90	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Aniline	0.90	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Anthracene	4.45	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Anthracene	4.45	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.	
Anthracene	4.45	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Anthracene	4.45	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Arochlor 1254	6.03	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Benz(a)anthracene	5.61	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79 029B.	
Benz(a)anthracene	5.61	USEPA. 1981. Water Quality Criteria Document: Polynuclear Aromatic Hydrocarbons. PB81-117 806. Washington, D.C.	
Benz(a)anthracene	5.664	SRC, 1988. Syracuse Research Corporation Calculated Values.	
Benzene	2.11	Karickhoff, S.W., Brown, D.S., and Scott, T.A., 1979. Sorption of Hydrophobic Pollutants on Natural Sediments. Water Res. 13:241-8.	
Benzene	2.13	Chiou, C.T., et al. 1983. Partition Equilibria of Nonionic Organic Compounds Between Soil Organic Matter and Water. Environ. Sci. Technol. 17:227-31.	
Benzene	2.13	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Benzene	2.13	Technical Database Services, Inc. 1985. Log P _{ow} Database, New York, NY.	
Benzo(b)fluoranthene	6.57	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	

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LOG K _{OW} VALUES			
Chemical Name Log Kow		Reference	
Benzo(b)fluoranthene	6.06	USEPA. 1981. Water Qual. Crit. Doc.: Polynuclear Arom. Hydrocarbons. PB81-117 806. Washington, D.C.	
Benzo(a)pyrene	5.97	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Benzo(a)pyrene	5.97	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Benzo(a)pyrene	5.97	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Benzothiazole	2.01	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.	
Benzothiazole	2.01	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Benzyl chloride	2.3	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Bromomethane	1.1	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Bromomethane	1.19	Technical Database Services, Inc. 1985. Log P _{sw} Database, New York, NY.	
Bromomethane	1.19	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Butanol	0.88	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Butanol	0.88	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Carbon tetrachloride	2.64	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Carbon tetrachloride	2.73	Rogers, R.D. and J.C. McFarlanc. 1981. Sorption of Carbon Tetrachloride, Ethylene Dibromide and Trichloroethylene in Soil and Clay. Environ. Monit. Assess. 1:155-8.	
Carbon tetrachloride	2.83	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.	
Carbon tetrachloride	2.64	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.	
Carbon tetrachloride	2.83	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Chlordane tech, grade	3.32	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.	

LOG K _{OW} VALUES				
Chemical Name	Log K _{ow}	Reference		
Chlordane-tech, grade	5.54	SRC, 1988. Syracuse Research Corporation Calculated Values.		
Chlordane-tech, gradě	2.78	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.		
Chlorobenzene	2.84	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.		
Chlorobenzene	2.84	Chiou, C.T., et al. 1983. Partition Equilibria of Nonionic Organic Compounds Between Soil Organic Matter and Water. Environ. Sci. Technol. 17:227-31.		
Chlorobenzene	2.84	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478		
Chlorobenzene	2.84	Hansch, C. and A.J. Leo. 1985 Medchem Project. Issue No. 26. Claremont, CA: Pomona College.		
Chlorobenzene	2.84	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.		
Chloroform	1.97	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.		
Chloroform	1.97	Chion, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.		
Chlorotorm	1.97	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.		
Chloromethane	0.91	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.		
Chloromethane	0.91	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.		
Chloromethane	0.91	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.		
Chrysene	5.664	SRC, 1988. Syracuse Research Corporation Calculated Values.		
Chrysene	4 98	Leo, A.J., et al. 1971. Partition Coefficients and Their Uses. Chem. Rev. 71:525-616.		
Chrysene	5.61	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.		
DDD	5.80	Dekock, A.C. and Lord, D.A. 1987. A Simple Procedure for Determining Octanol/Water Partition Coefficients Using Reverse Phase High-Performance Liquid Chromatography. Chemosphere. 16:133-4		

		LOG K _{OW} VALUES	
Chemical Name	Log K _{ow}	Reference	
DDD :	5.99	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
DDE	5.69	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
DDE	4.87	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
DDE	5.69	Chion, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.	
DDE	5.69	Webster, G.R.B., Friesen, K.L., Sarna, L.P., and Muir, D.C.G., 1985. Environmental Fate Modelling of Chlorodioxins: Determination of Physical Constants. Chemosphere 14:609-22.	
DDT	3.98	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
DDT	6.19	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.	
DDT	6.36	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
DDT	6.19	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
DDT	3.98	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Di-2 ethylhexyl Phthalate	8.73	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Di 2 ethylhexyl Phthalate	5.3	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Di 2 ethylhexyl Phthalate	3.98	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.	
Di 2-ethylhexyl Phthalate	5.11	The Organization for Economic Development. 1981. OECD Guidelines for Testing of Chemicals. Unwellbundesant, Berlin, Germany.	
Di-2-cihylhexyl Phthalate	3.98	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Dibenzofuran	4.12	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	

LOG K _{OW} VALUES		
Chemical Name	Log K _{ow}	Reference
Dibenzofuran	4.12	Technical Database Services, Inc. 1985. Log P _{ow} Database, New York, NY.
Dibromochloromethane	2.09	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
Dieldrin	4.55	Brooke, D.N., Dobbs, A.J., and Williams, N., 1986. Octanol: Water Partition Coefficients (P): Measurement, Estimation, and Interpretation, Particularly for Chemicals with P>E+5. Ecotox. Environ. Safety 11:251-60.
Diethylene Glycol	-1.98	Leo, A.L., et al. 1971. Partition Coefficients and Their Uses. Chem. Rev. 71:525-616.
Diethyl Phthalate	3.22	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
Dicthyl Phthalate	2.47	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
Diethyl Phthalate	2.35	Leyder, F. and Boulanger, P. 1983. Ultraviolet Absorption, Aqueous Solubility, and Octanol-Water Partition for Several Phthalates. Bull. Environ. Contam. Toxicol. 30:152-157.
Dicthyl Phthalate	2.47	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.
Diethyl Plathalate	2.47	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.
Dr n-butyl Phthalate	5.20	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
Di n-butyl Phthalate	4.72	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
Di-n-butyl Phthalate	4.80	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.
Dr n-butyl Phthalate	4.57	Leyder, F. and Boulanger, P. 1983. Ultraviolet Absorption, Aqueous Solubility, and Octanol-Water Partition for Several Phthalates. Bull. Environ. Contam. Toxicol. 30:152-157.
Di n-octyl Phthalate	5.22	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.
Dr n octyl Phthalate 9.	9.20	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.
Di n-octyl Phthalate	5.22	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.

LOG K _{OW} VALUES			
Chemical Name	Log K _{ow}	Reference	
Dioxane	-0.42	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Dioxane	-0.27	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Dioxin	6.15	Shroy, J.M., Hileman, F.D., and Cheng, S.C., 1984. The Uniqueness of Dioxins. Physical/Chemical Characteristics. Presented at the 8th ASTM Aquatic Toxicology Symposium, April 15-17, at the Draw Bridge Inn, Fort Mitchell, Kentucky.	
Dioxin	6.64	Marple, L., et al. 1986. Water Solubility of 2,3,7,8-tetrachlorodibenzo-p-dioxin. Environ. Sci. Technol. 20:180-2.	
Endosultan	3.55	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Endosulfan	3.62	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Endrin	4.56	Eadsforth, C.V. 1986. Application of Reverse Phase HPLC for the Determination of Partition Coefficients. Pest. Sci. 17:311-25.	
tindrin	5.6	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Ethylbenzene	3.15	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Ethylbenzene	3.15	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Ethylbenzene	3.15	Chiou, C.T., et al. 1983. Partition Equilibria of Nonionic Organic Compounds Between Soil Organic Matter and Water. Environ. Sci. and Technol. 17:227-31.	
Ethylbenzene	3 15	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.	
Ethylbenzene	3.15	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Ethylene Glycol Monoethyl Ether	-0.1	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Ethyl Chloride	1.54	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Ethyl Chloride	1.43	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	

WDCR481/131.51/10 (continued)

		LOG K _{OW} VALUES	
Chemical Name	Log K _{ow}	Reference	
Ethyl Ether	0.77	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Fluoranthene '	5.2	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Fluoranthene	5.33	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Fluorene	4.18	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Huorene	4 18	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College	
Heptachlor	4.27	SRC, 1988. Syracuse Research Corporation Calculated Values.	
Hexachlorobenzene	6.18	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Hexachlorobenzene	5.20	Platford, R.F., Carey, J.H., and Hale, E.J. 1982. The Environmental Significance of Surface Films: Part 1Octanol-Water Partition Coefficients for DDT and Hexachlorobenzene. Environ. Pollut. Ser. 3:125-8.	
Hexachlorobenzene	4.13	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Hexachlorobenzene	5.31	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College	
Hexachlorobutadiene	3.74	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Hexachlorocyclohexane-alpha	3.81	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Hexachlorocyclohexane-alpha	3.80	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Hexachlorocyclohexane-alpha	3.80	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College	
Hexachlorocyclohexane: BHC	3.78	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College	
Hexachlorocyclohexane: BHC	3.78	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Hexachlorocyclohexane: BHC	3.8	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	

		LOG K _{ow} Values	
Chemical Name Log K _{ow} Reference			
Hexachlorocyclohexane: Lindane	3.72	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Hexachlorocyclopentadiene	3.99	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Hexachlorocyclopentadiene	5.04	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Hexachlorocyclopentadiene	2.74	Atallah, Y.H., et al. 1980. Fate of Hexachlorocyclopentadiene in the Environment. Presented before the Div. of Env. Chem., American Chemical Society, Aug. 24-29, 1980. San Francisco, CA.	
Hexachlorocyclopentadiene	5.04	Wolfe, N.L., Zepp, R.G., Schlotzhauer, P., and Sink, M., 1982. Transformation Pathways of Hexachlorocyclopentadiene in the Aquatic Environment. Chemosphere. 11:91-101.	
Hexachlorocyclopentadiene	5.04	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Hexane	3.90	Technical Database Services, Inc. 1985. Log P., Database, New York, NY.	
Isobutyl Alcohol	0.76	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Isobutyl Alcohol	0.76	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Methylene Chloride	1.25	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
Methylene Chloride	1.25	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
Methyl Ethyl Ketone	0.29	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
Methyl Ethyl Ketone	0 29	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College	
Methyl Ethyl Ketone	0.29	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College	
Methyl Isobutyl Ketone	1.19	SRC, 1988. Syracuse Research Corporation Calculated Values.	
N nitroso diphenylamine	2.56	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
N-nitroso-diphenylamine	3.13	Technical Database Services, Inc. 1985. Log P., Database, New York, NY.	
N-nitroso-diphenylamine	3.13	Banerjee, S., et al. 1980. Water Solubility and Octanol/Water Partition Coefficients of Organic Limitations of the Solubility Partition Coefficient Correlation. Environ. Sci. Technol. 14:1227-9.	

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	N-nitroso-diphenylamine	3.13	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
	Naphthalene	3.59	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
	Naphthalene	3.30	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.	
	Naphthalene	3.37	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.	
	Naphthalene	3.37	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
	Naphthalene	3.30	lansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
	PCB's	3.90	Weber, W.J. Jr., Voice, T.C., Pirbazari, M., Hunt, G.E., and Ulanoff, D.M., 1983. Sorption of Hydrophobic Compounds by Sediments, Soils, and Suspended Solids-II. Sorbent Evaluation Studies. Water Res. 17:1443-52.	
	Pentachlorophenol	5.86	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.	
	Pentachlorophenol	5.12	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
4	Pentachlorophenol	5.01	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
	Phenanthrene	4.46	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.	
	Phenanthrene	4.46	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	
	Phenanthrene	4.46	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.	
	Phenol	1.48	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.	

Biology. New York, NY: John Wiley & Sons. pp. 339.

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Log Kow

1.46

1.46

LOG K_{OW} VALUES

Reference

Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and

Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.

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Phenol

Phenol

Chemical Name

LOG K _{OW} VALUES					
Chemical Name	Log K _{ow}	Reference			
Toluene	2.69	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.			
Toluene	2.69	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.			
Toluene	2.73	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.			
Toluene	2.69	Chiou, C.T., et al. 1977. Partition Coefficient and Bioaccumulation of Selected Organic Chemicals. Env. Sci. and Technol. 11(5):475-478.			
Toluene	2.73	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.			
Toxaphene	4.82	SRC, 1988. Syracuse Research Corporation Calculated Values.			
Toxaphene	3.3	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.			
Tribromomethane	2.3	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.			
Tribromomethane	2.39	Wang, Ming. 1987. HRS Issue Analysis: Alternatives Methods for Ranking the Persistence of Hazardous Substances in Drinking Water. McLean, Virginia. The MITRE Corporation.			
Tribromomethane	2.37	SRC, 1988. Syracuse Research Corporation Calculated Values.			
Trichloroethylene	2.29	Rogers, R.D. and J.C. McFarlane. 1981. Sorption of Carbon Tetrachloride, Ethylene Dibromide and Trichloroethylene in Soil and Clay. Environ. Monit. Assess. 1:155-8.			
Trichloroethylene	2.42	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.			
Trichloroethylene	2.29	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.			
Trichloroethylene	2.29	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.			
Trichlorofluoromethane	2.53	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.			
Trichlorofluoromethane	2.53	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.			
Triethanolamine	-1.50	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.			
Trinitrotoluene	1.60	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.			

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LOG K _{OW} VALUES				
Chemical Name	Log K _{ow} Reference			
Vinyl Chloride	0.60	Callahan, M.A., et al. 1979. Water-related Environmental Fate of 129 Priority Pollutants - Vol. II. EPA-440/4-79-029B.		
Vmyl Chloride	1.36	SRC. 1988. Syracuse Research Corporation Calculated Values.		
m-Xylene	3.20	Technical Database Services, Inc. 1985. Log P _{ow} Database, New York, NY.		
m-Xylene	3.20	Hansch, C. and A.J. Leo. 1981. Medchem Project. Issue No. 19. Claremont, CA: Pomona College.		
m-Xylene	3.20	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.		
o-Xylene	3.12	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.		
o-Xylene	3.12	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.		
o-Xylene	2.77	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.		
p-Xylene	3.15	Hansch, C. and A.J. Leo. 1985. Medchem Project. Issue No. 26. Claremont, CA: Pomona College.		
p-Xylene	3.15	Hansch, C. and A.J. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York, NY: John Wiley & Sons. pp. 339.		
p-Xylene	3.15	Technical Database Services, Inc. 1985. Log Pow Database, New York, NY.		

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Appendix F U.S. ENVIRONMENTAL PROTECTION AGENCY DRAFT PRELIMINARY REMEDIAL GOALS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street San Francisco, CA 94105-3901

April 2, 1993

Subject: Region IX Preliminary Remediation Goals (PRGs)

Second Quarter 1993

From: Stanford J. Smucker, Ph.D.

Regional Toxicologist (H-9-3)

To: PRG Table Mailing List

Preliminary remediation goals (PRGs) are health-based concentrations in environmental media, air, soil, and water. They can be used for risk screening purposes, as possible triggers for action or further investigation at CERCLA/RCRA sites, and as starting points for determining site-specific cleanup goals, whenever appropriate. PRGs combine updated EPA toxicity values with conservative (health-protective) exposure assumptions to estimate contaminant levels in environmental media which correspond to a lifetime cancer risk of 10⁻⁶ risk and/or a hazard index of 1 for noncancer concerns.

PRGs are based on human-health effects from direct contact with the environmental media. For groundwater and soils, the predominant route of exposure for most contaminants is considered to be injustion, in accordance with Risk Assessment Guidance for Superfund - Part B (EPA, 1991). For volatile organic chemicals (VOCs), both ingestion and inhalation routes are factored into the PRG equation. Children were evaluated separately when calculating PRGs for residential soils due to the disproportionately greater daily intake during this period (ages 1 thru 6). In all cases, standard "defaults" for reasonable maximum exposures (RME) were assumed (RAGS Supplemental Guidance; OSWER Directive 9285.6-03).

In general, PRGs are based on ingestion assumptions that should be sufficiently conservative (health-protective) to assure that this route is the predominate route of exposure, when compared with other routes such as dermal contact or inhalation. However, in some cases, acute irritation, sensitization reactions, and/or cancer concerns associated with dermal contact may need to be considered. For sites with <u>significant</u> dust emissions, the PRG for soils may not be sufficiently protective for respirable, airborne dusts (e.g. chromium-laden dusts).

Attached is the EPA Region IX PRG Table, which is distributed quarterly to all interested parties. This represents the first time Region IX has distributed a list of PRGs and the Table may contain errors. It is advisable to consult with a toxicologist before relying heavily on any number in the Table. Region IX gratefully acknowledges the contributions of Roy Smith (Region III, Senior Toxicologist) for his input in preparing the Tables.



DISCLAIMER

PRGs focus on dominant exposure pathways and do not consider all exposure pathways typically encountered at sites (Exhibit 1-1). Preliminary remediation goals do not consider impact to groundwater or address ecological concerns. PRGs are not intended as a substitute for EPA guidance for preparing RI/FS baseline risk assessment or setting site-specific cleanup levels.

READING THE PRG TABLE

General Considerations:

The PRG Table can be used for general risk screening purposes for residents and workers. Separate cancer and noncancer PRGs were calculated based on a lifetime cancer risk of 10⁻⁶ risk and a noncancer hazard index of 1. The PRG Table presents the lower of the two values.

Note that the higher the PRG in air, soil, and water, the lower the associated chemical toxicity. For some relatively nontoxic chemicals, health-based PRGs in soil were extremely high. As a result, a maximum cap (indicated by "max") was fixed at 10 percent (or 100,000 mg/kg) in soil. Above this level, it is debatable whether the matrix can be considered soil, so the maximum PRG is fixed at 10 percent in soils.

Toxicity Values:

EPA toxicity values, known as acceptable reference doses (RfD) and carcinogenic slope factors (SF) were obtained from IRIS through December 1992, HEAST through July 1992, and OHEA-Cincinnati. EPA Region IX gratefully acknowledges Roy Smith (Region III Senior Toxicologist) for providing updated information on nearly 600 chemicals in his Risk-Based Concentration Tables.

The priority among sources of toxicological constants used are as follows: (1) IRIS (indicated by "i"), (2) HEAST ("h"), (3) ECAO-Cincinnati ("e"), (4) withdrawn from IRIS ("x"), (5) withdrawn from HEAST ("x"). For polynuclear aromatic hydrocarbons, a toxicity equivalency factor ("t") was applied (ECAO-Cincinnati).

Route-to-route extapolations ("r") were frequently used when there were no toxicity values available for a given route. Oral cancer slope factors (oSF) and reference doses (oRfD) were used for both oral and inhaled exposures for organic compounds lacking inhalation values. Inhaled slope factors (iSF) and reference doses (iRfD) were used for both inhaled and oral exposures for organic compounds lacking oral values.

Volatile Chemicals in Soil and Water:

For volatile chemicals, a volatilization factor or constant was incorporated into the PRG equations for soil and water. Volatile organic chemicals (VOCs) are indicated by "1" in the PRG Table and are defined as those chemicals having a Henry's Law constant greater than 10^{-5} (atm-m³/mol) and a molecular weight less than 200 g/mole).

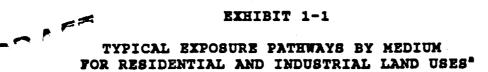
For tap water, an upperbound volatilization constant (K) is used that is based on all uses of household water (e.g showering, laundering, dish washing). Certain assumptions were made. For example, it is assumed that the volume of water used in a residence for a family of four is 720 L/day, the volume of the dwelling is 150,000 L and the air exchange rate is 0.25 m³/hour. Furthermore, it is assumed that the average transfer efficiency weighted by water use is 50 percent (i.e., half of the concentration of each chemical in water will be transfered into air by all water uses [the range extends from 30% for toilets to 90% for dishwashers]).

Volatilization factors for soils (VF) are chemical specific. A surrogate VF for contaminants in soil was required for some chemicals that lacked physicochemical information. In these cases, a proxy chemical of similar structure was used that may over- or under-estimate the PRG for soils.

The basic principle of the VF model is applicable only if the soil contaminant concentration is at or below soil saturation. If the PRG calculated using VF was greater than the calculated soil saturation ("sat"), the PRG was set equal to "sat" in accordance with Risk Assessment Guidance for Superfund - Part B (EPA, 1991).



EXHIBIT 1-1



EXPOSURE PATHWAYS, ASSUMING:					
MEDIUM	RESIDENTIAL LAND USE	INDUSTRIAL LAND USE			
Ground Water	Ingestion from drinking	Ingestion from drinking			
	Inhalation of volatiles	Inhalation of volatiles			
	Dermal absorption from bathing	Dermal absorption			
Surface Water	Ingestion from drinking	Ingestion from drinking			
	Inhalation of volatiles	Inhalation of volatiles			
	Dermal absorption from bathing	Dermal absorption			
	Ingestion during swimming				
	Ingestion of contaminated fish				
Soil	Ingestion	Ingestion			
	Inhalation of particulates	Tnhalation of particulates			
	Inhalation of volatiles	Inhalation of volatiles			
	Exposure to ground water contaminated by soil leachate	Exposure to ground water contaminated by soil leachate			
	Ingestion via plant uptake	Inhalation of particulates from trucks and heavy equipment			
	Dermal absorption from gardening				

Footnote:

⁸Exposure pathways considered in the PRG calculations are indicated in bold print.



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EXPOSURE ASSUMPTIONS

Parameter	Definition (units)	Default
CSF _o	Cancer slope factor oral (mg/kg-d) ⁻¹	
CSF _i	Cancer slope factor inhaled (mg/kg-d) ⁻¹	
${\tt RfD}_{\tt o}$	Reference dose oral (mg/kg-d)	
${\tt RfD}_{i}$	Reference dose inhaled (mg/kg-d)	
TR	Target cancer risk	10-6
THQ	Target hazard quotient	1
$\mathtt{BW}_\mathtt{a}$	Body weight, adult (kg)	70
BW _c	Body weight, child (kg)	15
AT	Averaging time (years of life)	70ª
IR _a	Air breathed (m ³ /day)	20
IR	Drinking water ingestion (L/day)	2
IRS _a	Soil ingestion - adult resident (mg/day)	100
IRS _c	Soil ingestion - resident age 1-6, (mg/day)	200
IRS _o	Soil ingestion - occupational (mg/day)	50
EF _r	Exposure frequency - residential (d/y)	350
EF _o	Exposure frequency - occupational (d/y)	250
EDr	Exposure duration - residential (years)	30, 6 ^b
ED _o	Exposure duration - occupational (years)	25
K	Volatilization factor for water (unitless) (Andelman 1990)	0.5

Footnote:

^aSeventy years is the averaging time for carcinogens. For noncarcinogens, the averaging time is set equal to the exposure duration (AT = ED).

^bExposure duration for adult residents is assumed to be 30 years and for child residents is assumed to be 6 years (age 1 thru 6).

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PRG EQUATIONS

- Residential Soil
 - a. Carcinogens:

$$C(mg/kg) = \frac{TRxBW_axATx365d/y}{EF_xxED_x\left[\left(\frac{IRS_axCSF_o}{10^6mg/kg}\right) + \left(\frac{IR_axCSF_i}{VF}\right)\right]}$$

- b. Non-carcinogens:
- (1) Child

$$C(mg/kg) = \frac{THQxRfD_{\sigma}xBW_{\sigma}xED_{r}x365d/y}{EF_{r}xED_{r}x\frac{IRS_{\sigma}}{10^{6}mg/kg}}$$

(2) Adult (for volatiles only)

$$C(mg/kg) = \frac{THQxBW_axED_rx365d/y}{EF_rxED_rx[(\frac{1}{RfD_o}x\frac{IRS_a}{10^6mg/kg}) + (\frac{1}{RfD_i}x\frac{IR_a}{VF})]}$$

- 2. Industrial Soil
 - a. Carcinogens

$$C(mg/kg) = \frac{TRxBW_axATx365d/y}{EF_oxED_ox\left[\left(\frac{IRS_oxCSF_o}{10^6mg/kg}\right) + \left(\frac{IR_axCSF_i}{VF}\right)\right]}$$

b. Non-carcinogens

$$C(mg/kg) = \frac{THQxBW_axED_ox365d/y}{EF_oxED_ox[(\frac{1}{RfD_o}x\frac{IRS_o}{10^6mg/kg}) + (\frac{1}{RfD_i}x\frac{IR_a}{VF})]}$$

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3. Drinking water

a. Carcinogens

$$C(ug/L) = \frac{TRxBW_axATx365d/yx10^3ug/mg}{EF_xxED_xx[(IR_wxCSF_o) + (KxIR_axCSF_1)]}$$

b. Non-carcinogens

$$C(ug/L) = \frac{THQxBW_axED_rx365d/yx10^3ug/mg}{EF_rxED_rx[(\frac{IR_w}{RfD_o}) + (\frac{KxIR_a}{RfD_i})]}$$

- 4. Air
 - a. Carcinogens

$$C(ug/m^3) = \frac{TRxBW_axATx365d/yx10^3ug/mg}{EF_rxED_rxIR_axCSF_i}$$

b. Non-carcinogens

$$C(ug/m^3) = \frac{THQxRfD_ixBW_axED_rx365d/yx10^3ug/mg}{EF_rxED_rxIR_a}$$



SOIL-TO-AIR VOLATILIZATION FACTOR (VF)

$$VF(m^{3}/kg) = \frac{(LSxVxDH)}{A} \times \frac{(3.14x\alpha xT)^{1/2}}{(2xD_{ei}xP_{a}xK_{ae}x10^{-3}kg/mg)}$$

where:

$$\alpha = \frac{D_{ei} x P_a}{P_a + (\rho_s) (1 - P_a) / K_{as}}$$

<u>Parameter</u>	Definition (units)	<u>Default</u>
VF	Volatilization factor (m ³ /kg)	
LS	Length of side of contaminated	45
v	area (m) Windspeed in mixing zone (m/s)	2.25
DH .	Diffusion height (m)	2
A	Area of contamination (cm ²)	20,250,000
D _{ei}	Effective diffusivity (cm ² /s)	$D_i(P_a^{3.33}/P_t^2)$
ت ه	Air filled soil porosity	P08
P _t	(unitless) Total soil porosity (unitless)	$1-(B/\rho_s)$
ė	Soil moisture content	10% or 0.1
ß	Soil bulk density (g/cm³)	1.5
ρ_s	True soil density or	2.65
K _{as}	particle density (g/cm ³) Soil-air partition coefficient (g-soil/cm ³ -air)	(H/K_d) x 41 $(41$ is a conversion factor)
T	Exposure interval (s)	7.9×10^{8}
D _i	Diffusivity in air (cm ² /s)	Chemical-specific
Н	Henry's Law constant (atm-m ³ /mol)	Chemical-specific
K _d	Soil-water partition coefficient (cm ³ /kg)	K _{oc} x OC
k _{oc}	Organic carbon partition coefficient (cm ³ /kg)	Chemical-specific
oc	Organic carbon content of soil (fraction)	2% or 0.02



SOIL SATURATION CONCENTRATION (C_{sat})

$$C_{sat} = \frac{(K_d \times C_w \times \beta) + (C_w \times P_w) + (C_w \times H' \times P_a)}{\beta}$$

Parameter	Definition (units)	<u>Default</u>
C _{sat}	Soil saturation concentration (mg/kg)	
K _d	Soil-water partition coefficient (L/kg)	K _∞ x oc
K _{oc}	Organic carbon partition	Chemical-specific
oc	Organic carbon content of soil (fraction)	2% or 0.02
C _w	Upper limit of free moisture in soil (mg/L-water)	S x 0 _m
s	Solubility in water (mg/L-water)	Chemical-specific
ß	Soil bulk density (kg/L)	1.5
P _w	Water filled soil porosity	P _t - P _a
H'	Henry's Law constant (unitless)	H x 41, where 41 is a conversion factor
P _a	Air-filled soil porosity	P _t - OB
θ	Soil moisture content (kg-water/kg-soil)	10% or 0.1
P _t	Total soil porosity (unitless)	$1 - (\beta/\rho_s)$
ρ_s	True soil density or particle density (kg/L)	2.65

CONTAMINANT	1	TOXICITY V	ALUES			PRELIM	INARY REMEDIATION G	DALS (PRGS)	
	oSF	oRfD	isf	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
					С	1			
Acephate	8.7E-03 i	4.0E-03	i 8.7E-03 r	4.0E-03 r	0	2.0E+02 ca	6.6E+02 ca	9.8E-01 ca	9.8E+00 ca
Acetaldehyde	1	2.6E-03	r	2.6E-03 i	0	2.0E+02 nc	5.3E+03 nc	9.4E+00 nc	9.5E+01 nc
Acetone	. 1	1.0E-01	i	1.0E-01 r	1	9.2E+03 nc	1.3E+04 nc	3.7E+02 nc	7.7E+02 nc
Acetone cyanohydrin	1	7.0E-02	h	2.9E-03 h	0	5.5E+03 nc	1.0E+05 mex	1.0E+01 nc	2.6E+03 nc
Acetone cyanohydrin Acetonitrile Acetophenone Acetophenone	- 1	6.0E-03	i	1.4E-02 hj	0	4.7E+02 nc	1.2E+04 nc	5.2E+01 nc	2.2E+02 nc
Acetophenone	1	1.0E-01	i	5.7E-06 h	0	7.8E+03 nc	1.0E+05 max	2.1E-02 nc	3.7E+03 nc
Acifluorfen	1	1.3E-02	i	1.3E-02 r	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc
Acrolein	1	2.0E-02	h	5.7E-06 i	0	1.6E+03 nc	4.1E+04 nc	2.1E-02 nc	7.3E+02 nc
Acrylamide	4.5E+00 i	2.0E-04	i 4.5E+∩0 i	2.0E-04 r	0	3.8E-01 ca	1.3E+00 cm	1.9E-03 ca	1.9E-02 ca
Acrylic acid	İ	8.0E-02	i	8.6E-05 i	0	6.3E+03 nc	1.0E+05 max	3.1E-01 nc	2.9E+03 nc
Acrylonitrile	5.4E-01 i	5.7E-04	r 2.4E-01 i	5.7E-04 i	1	2.6E-01 cm	4.5E-01 ca	3.6E-02 ca	5.9E-02 ca
Alachlor	8.1E-02 h	1.0E-02	i 8.0 E-02 r	1.0E-02 r	0	2.1E+01 ca	7.1E+01 ca	1.1E-01 ca	1.1E+00 ca
Alar	İ	1.5E-01	i	1.5E-01 r	0	1.2E+04 nc	1.0E+05 max	5.5E+02 nc	5.5E+03 nc
Aldicarb	İ	2.0E-04	i	2.0E-04 r	0	1.6E+01 nc	4.1E+02 nc	7.3E-01 nc	7.3E+00 nc
Aldicarb sulfone	1	3.0E-04	x	3.0E-04 r	0	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
Aldrin	1.7E+01 i	3.0E-05	i 1.7E+01 i	3.0E-05 r	0	1.0E-01 ca	3.4E-01 ca	5.0E-04 ca	5.0E-03 ca
Ally	1	2.5E-01	i	2.5E-01 r	0	2.0E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc
Allyl alcohol	1	5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Allyl chloride	1	5.0E-02	h	2.9E-04 i	0	3.9E+03 nc	1.0E+05 max	1.0E+00 nc	1.8E+03 nc
Alumium		1.0E+00	e	İ	0	7.8E+04 nc	1.0E+05 max		3.7E+04 nc
Aluminum phosphide	j	4.0E-04	i	j	0	3.1E+01 nc	8.2E+02 nc		1.5E+01 nc
Amdro	İ	3.0E-04	i	3.0E-04 r	0	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
Ametryn	i	9.0E-03	i	9.0E-03 r	0		1.8E+04 nc	3.3E+01 nc	3.3E+02 nc
m-Aminophenol	i	7.0E-02	h	7.0E-02 r	0		1.0E+05 max	2.6E+02 nc	2.6E+03 nc
4-Aminopyridine	i	2.0E-05	h	2.0E-05 r			4.1E+01 nc	7.3E-02 nc	7.3E-01 nc
Amitraz	i	2.5E-03	i	2.5E-03 r		2.0E+02 nc	5.1E+03 nc	9.1E+00 nc	9.1E+01 nc
Amnonia	i	2.9E-02		2.9E-02 i				1.0E+02 nc	2.2E+02 nc
Ammonium sulfamate	i	2.0E-01		2.0E-01 r		<u>.</u>	1.0E+05 max	7.3E+02 nc	7.3E+03 nc
Anitine	5.7E-03 i						5.9E+02 nc	1.0E+00 nc	1.1E+01 nc
Antimony and compounds	1	4.0E-04		1	0	3.1E+01 nc	8.2E+02 nc		1.5E+01 nc
Antimony pentoxide	i	5.0E-04		1	0	3.9E+01 nc	1.0E+03 nc		1.8E+01 nc
Antimony potassium tartrate	1	9.0E-04		, 1	0	<u>.</u>	1.8E+03 nc		3.3E+01 nc

CONTAMINANT	1	TOXICITY V	HOES	1		PRELIMI	NARY REMEDIATION G	DALS (PRGS)	
	o\$F	oRf0	isf	iRfD	V	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d) 	(mg/kg-d)	1/(mg/ke+d)	(mg/kg-d)	0 C	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
Antimony tetroxide	<u> </u>	4.0E-04 i		 		3.1E+01 nc	8.2E+02 nc		1.5E+01 nc
Antimony trioxide	! 1	4.0E-04 i		i	0	•	8.2E+02 nc		1.5E+01 nc
Apollo	1 1	1.3E-02		1.3E-02 r		<u>.</u>	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc
	l 2.5E-02 i	5.0E-02 i		5.0E-02 r			2.3E+02 ca	3.4E-01 ca	3.4E+00 ca
Arenic Assure DRAFT	1.8E+00 i	3.0E-04 i		1	0	:	3.3E+00 ca	5.7E-04 ca	4.9E-02 ca
Assure DRAFI	1.02.00 7	9.0E-03 i		9.0E-03 r			1.8E+04 nc	3.3E+01 nc	3.3E+02 nc
Asulam) [5.0E-62 i		5.0E-02 r			1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Atrazine	ı 2.2E-01 h	5.0E-03 i		5.0E-03 r			2.6E+01 ca	3.9E-02 ca	3.8E-01 ca
Avermectin B1	1	4.0E-04 i		4.0E-04 r		!	8.2E+02 nc	1.5E+00 nc	1.5E+01 nc
Azobenzene	, 1.1E-01 i	******	1.1E+01 i		0	•	5.2E+01 ca	7.8E-02 ca	7.7E-01 ca
Barium and compounds	,	7.0E-02		1.4E-04 h		•	1.0E+05 max	5.2E-01 nc	2.6E+03 nc
Baygon	! !	4.0E-03		4.0E-03 r			8.2E+03 nc	1.5E+01 nc	1.5E+02 nc
Bayleton .	1	3.0E-02		3.0£-02 r			6.1E+04 nc	1.1E+02 nc	1.1E+03. nc
Baythroid	1	2.5E-02		2.5£-02 r		•	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Benefin	' 	3.0E-01		3.0E-01 r			1.0E+05 max	1.1E+03 nc	1.1E+04 nc
Benomyl	Ì	5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Bentazon	•	2.5E-03	i	2.5E-03 r	0	2.0E+02 nc	5.1E+03 nc	9.1E+00 nc	9.1E+01 nc
Benzal dehyde	i	1.0E-01	i	1.0E-01 r		7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
Benzene	2.9E-02 i		2.9E-02 1	Ì	1	2.7E+00 ca	4.6E+00 ca	2.9E-01 ca	6.2E-01 ca
Benzidine	2.3E+02 i	3.0E-03		3.0E-03 r	0	7.4E-03 ca	2.5E-02 ca	3.7E-05 ca	3.7E-04 ca
Benzoic acid	i	4.0E+00	i	4.Q#+00 i	0	1.0E+05 max	1.0E+05 max	1.5E+04 nc	1.5E+05 nc
Benzotrichloride	1.3E+01 i		1.3E+01 r		0	1.3E-01 ca	4.4E-01 ca	6.6E-04 ca	6.6E-03 ca
Benzyl alcohol	i I	3.0E-01 l	1	3.0E-01 r	0	2.3E+04 nc	1.0E+05 max	1.1E+03 nc	1.1E+04 nc
Benzyl chloride	1.7E-01 i		1.7£-01 c	·	1	3.4E+00 ca	6.8E+00 ca	5.0E-02 ca	1.1E-01 ca
Beryllium and compounds	4.3E+00 i	5.0E-05	8.4E+90 i	5,0E-03 r	0	4.0E-01 ca	1.3E+00 ca	1.0E-03 ca	2.0E-02 ca
Bidrin	İ	1.0E-04	1	1.06-04 r	0	7.8E+00 nc	2.0E+02 nc	3.6E-01 nc	3.7E+00 nc
Biphenthrin (Talstar)	İ	1.5E-02	i	1.5£-02 r	•	1.2E+03 nc	3.1E+04 nc	5.5E+01 nc	5.5E+02 nc
1,1-Biphenyl	i	5.0E-02		5.0£-02 r	•	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Bis(2-chloroethyl)ether	1.1E+00 i		1.2E+00 i		1	5.1E-01 ca	1.0E+00 ca	7.4E-03 ca	1.6E-02 ca
Bis(2-chlorofsopropyl)ether	7.0E-02 h	4.0E-02	i 3.5E-02 h	4.0E-02 r	1	1.1E+01 ca	2.3E+01 ca	2.4E-01 ca	4.2E-01 ca
Bis(chloromethyl)ether	2.2E+02 i		2.25+02 i	İ	1	2.5E-04 ca	4.3E-04 ca	3.9E-05 ca	8.2E-05 ca
Bis(2-chloro-1-methylethyl)ether	7.0E-02 x		7.0F-02 x	·	0	2.4E+01 ca	8.2E+01 ce	1.2E-01 ca	1.2E+00 ca
Bis(2-ethylhexyl)phthalate (DEHP)	1.4E-02 i	2.0E-02			0	1.2E+02 cm	4.1E+02 ca	6.1E-01 ca	6.1E+00 ca

CONTAMINANT	-	TOXICITY V	ALUES	1		PRELIMI	NARY REMEDIATION G	DALS (PRGS)	
	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/t)
				 	С	 !			
Bisphenol A Boron Boron trifluoride DRA	T. T	5.0E-02		5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Boron DD D	ZI 1	9.0E-02	i	5.7E-03 h	0	7.0E+03 nc	1.0E+05 max	2.1E+01 nc	3.3E+03 nc
Boron trifluoride	1	2.0E-04	r	2.0E-04 h	0			7.3E-01 nc	7.3E+00 nc
Bromodichloromethane	1.3E-01 i	2.0E-02	i 1.3E-01 r	2.0E-02 r	1	1.6E-01 ca	2.7E-01 ca	6.6E-02 ca	1.4E-01 ca
Bromoethene	1.1E-01 r		1.1E-01 h	·	1			7.7E-02 ca	1.6E-01 cm
Bromoform (tribromomethane)	7.9E-03 i	2.0E-02	i 3. 9E-03 i	2.0E-02 r	0	2.2E+02 ca	7.2E+02 ca	2.2E+00 ca	1.1E+01 ca
Bromomethane	1	1.4E-03	i	1.4E-03 i	1	9.9E+00 nc	1.4E+01 nc	5.2E+00 nc	1.1E+01 nc
4-Bromophenyl phenyl ether	1			j	0				i
Bromophos		5.0E-03	1	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Bromoxynil	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Bromoxynil octanoate	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
1,3-Butadiene	9.8E-01 r		9.8E-01 i	İ	1			8.7E-03 ca	1.8E-02 ca
1-Butanol	j	1.0E-01	i	1.0E-01 r	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
Butylate	ĺ	5.0E-02		5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Butyl benzyl phthalate		2.0E-01		2.0E-01 r	0	1.6E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc
Butylphthalyl butylglycolate	1	1.0E+00		1.0E+00 r	0	7.8E+04 nc	1.0E+05 max	3.7E+03 nc	3.7E+04 nc
Cacodylic acid		3.0E-03 I	1	3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc
Cadmium and compounds	1	5.0E-04	6.3E+ 00 i	1	0	3.9E+01 nc	1.0E+03 nc	1.4E-03 ca	1.8E+01 nc
Caprolectam		5.0E-01 i		5.0E-01 r	0	3.9E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 nc 1
Captafol	8.6E-03 h	2.0 E-03 i	8.6E-03 r	2.0E-03 r	0	1.6E+02 ca	6.7E+02 ca	9.9E-01 ca	9.9E+00 ca
Captan	3.5E-03 h	1.3E-01	3.5E-03 r	1.3E-01 r	0	4.9E+02 ca	1.6E+03 ca	2.4E+00 ca	2.4E+01 cm
Carbaryl	l	1.0E-01		1.1E-01 r	0	7.8E+03 nc	1.0E+05 max	4.0E+02 nc	3.7E+03 nc
Carbazole	2.0E-02 h		2.0E-0 2 r	į	o j	8.5E+01 ca	2.9E+02 ca	4.3E-01 ca	4.3E+00 ca
Carbofuran	1	5.0E-03 i		5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Carbon disulfide	1	1.0E-01 i		2.9E-03 h	1	5.3E+01 nc	7.4E+01 nc	1.0E+01 nc	2.8E+01 nc
Carbon tetrachloride	1.3E-01 i	7.0E-04	5.2E-02 i	5.7E-04 e	1	9.2E-01 ca	1.6E+00 ca	1.6E-01 ca	2.6E-01 ca
Carbosulfan	į	1.0E-02 i		1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
Carboxin	i	1.0E-01 i		1.0E-01 r	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
Chloral	i	2.0E-03 i		2.0E-03 r	οi	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Chloramben	i	1.5E-02 i		1.5E-02 r	•	1.2E+03 nc	3.1E+04 nc	5.5E+01 nc	5.5E+02 nc
Chloranil	4.0E-01 h		4.0E-01 r	•	0	4.2E+00 ca	1.4E+01 ca	2.1E-02 ca	2.1E-01 cm
Chlordane	1.3E+00 i	6.0E-05 i	1.3E+00 i	6.0E-05 r	0	1.3E+00 cm	4.4E+00 cm	6.6E-03 ca	6.6E-02 ca
Chlorimuron-ethyl	i	2.0E-02 i		2.0E-02 r			4.1E+04 nc	7.3E+01 nc	7.3E+02 nc

CONTAMINANT	1	TOXICITY V	LUES			PRELIMINARY REMEDIATION GOALS (PRGS)					
	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water		
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)		
			-		<u> </u>	<u> </u>					
Chlorine dioxide	FT	5.7E- 05 +		5.7E-05 i		!		2.1E-01 nc	4.4E-01 nc		
Chlorine dioxide Chloroscetaldehyde Chloroscetic acid Chloroscetic acid	(F		•	_ !	1						
Chloroscetic scid		2.0E-03 h		2.0E-03 r			4.1E+03 nc	7.3E+00 nc	7.3E+01 nc		
2-Chloroacetophenone		8.6E-06 r		8.6E-06 i			3.9E-01 nc	3.1E-02 nc	6.6E-02 nc		
4-Chloroaniline		4.0E-03 i		4.0E-03 r			8.2E+03 nc	1.5E+01 nc	1.5E+02 nc		
Chlorobenzene		2.0E-02 i		5.7E-03 h	1	<u>.</u>	3.0E+02 sat	2.1E+01 nc	5.2E+01 nc		
Chlorobenzilate	2.7E-01 h	2.0E-02 i	2.7E-0: I	1 / 2.0E-02 r	0	6.3E+00 ca	2.1E+01 ca	3.2E-02 ca	3.2E-01 ca		
p-Chlorobenzoic acid		2.0E-01 h		2.0E-01 r	0		1.0E+05 max	7.3E+02 nc	7.3E+03 nc		
4-Chlorobenzotrifluoride		2.0E-02 l		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc		
2-Chloro-1,3-butadiene		7.0E-03 h		2.9E-02 h	1	2.1E+02 sat	2.1E+02 sat	1.0E+02 nc	1.3E+02 nc		
1-Chlorobutane		4.0E-01 h		4.0E-01 r	1	7.4E+02 sat	7.4E+02 sat	1.5E+03 nc	3.1E+03 nc		
2-Chloroethyl vinyl ether					1						
Chtoroform	6.1E-03 i	1.0E-02 i	8.1E-02	i 1.0E-02 r	1	9.6E-01 ca	1.6E+00 cm	1.1E-01 ca	2.8E-01 ca		
Chloromethane	1.3E-02 h		6.3E-03 I	۱	1	2.5E+00 ca	4.3E+00 ca	1.4E+00 ca	2.3E+00 ca		
4-Chloro-2-methylaniline	5.8E-01 h		5.8E-01 a	٠	0	2.9E+00 cm	9.9E+00 cm	1.5E-02 ca	1.5E-01 ca		
4-Chloro-2,2-methylaniline hydrochloride	4.6E-01 h		4.6E-01	۱ ا	0	3.7E+00 ca	1.2E+01 ca	1.9E-02 cm	1.9E-01 ca		
beta-Chloronaphthalene		8.0E-02 i		8.0E-02 r	0	6.3E+03 nc	1.0E+05 max	2.9E+02 nc	2.9E+03 nc		
o-Chloronitrobenzene	2.5E-02 h		2.56-02	r r (0	6.8E+01 ca	2.3E+02 ca	3.4E-01 ca	3.4E+00 ca		
p-Chloronitrobenzene	1.8E-02 h		1.8E-02 i	r r [0	9.5E+01 ca	3.2E+02 ca	4.7E-01 ca	4.7E+00 ca		
2-Chlorophenol		5.0E-03 i		5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc		
2-Chloropropane		2.9E-02 r		2.9E-02 h	1	3.1E+02 sat	3.1E+02 sat	1.0E+02 nc	2.2E+02 nc		
Chlorothalonil	1.1E-02 h	1.5E-02 i	1.1E-02 (r 1.5E-02 r	0	1.5E+02 ca	5.2E+02 ca	7.7E-01 ca	7.7E+00 ca		
o-Chlorotoluene		2.0E-02 i		2.0E-02 r	1	3.2E+02 sat	3.2E+02 sat	7.3E+01 nc	1.5E+02 nc		
Chlorpropham		2.0E-01 i		2.0E-01 r	0	1.6E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc		
Chlorpyrifos		3.0E-03 i		3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc		
Chlorpyrifos-methyl		1.0E-02 h		1.0E-02 r		7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc		
Chlorsulfuron		5.0E-02 i		5.0E-02 r		3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc		
Chlorthiophos	i 	8.0E-04 h		8.0E-04 r		6.3E+01 nc	1.6E+03 nc	2.9E+00 nc	2.9E+01 nc		
Chromium III and compounds	<u> </u>	1.0E+00 i		5.7E-07 x			1.0E+05 max	2.1E-03 nc	3.7E+04 nc		
Chromium VI and compounds		5.0E-03 i		•	0	•	1.0E+04 nc	2.0E-04 ca	1.8E+02 nc		
Coal tars	 		2.2E+00 I	<u>.</u>	0	1		3.9E-03 ca	11-4: WE 110		
Cobalt				2.9E-04 e		ĺ		1.0E+00 nc			
Coke Oven Emissions			2.2E+0(0	1		3.9E-03 ce			

CONTANINANT	Ī	TOXICITY V	ALUES	l	Ì	•	NARY REMEDIATION G	OALS (PRGS)	
	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m³)	(ug/l)
		 .				 			
Copper and compounds	1	3.7E-02 I			0	2.9E+03 nc	7.6E+04 nc		1.4E+03 nc
Crotonal dela 15	1.9E+00 h	1.0E-02	1.9E+ 00 x			•	3.7E-02 ca	4.5E-03 ca	9.4E-03 ca
Cumene	101	4.0E-02	i	2.6E-03 h	1	6.8E+01 sat	6.8E+01 sat	9.4E+00 nc	2.5E+01 nc
Cumene Cyanazine Cyanides	AIII	2.0E-03	1	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Cyanides						ļ			
Barium cyanide	1	1.0E-01		1.1E-01 r		7.8E+03 nc	1.0E+05 max	4.0E+02 nc	3.7E+03 nc
Copper cyanide	1	5.0E-03	i	5.0E-03 r		3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Calcium cyanide	1	4.0E-02	i	4.0E-02 r		,	8.2E+04 nc	1.5E+02 nc	1.5E+03 nc
Cyanogen	1	4.0E-02		4.0E-02 r	0	3.1E+03 nc	8.2E+04 nc	1.5E+02 nc	1.5E+03 nc
Cyanogen bromide	1	9.0E-02		9.0E-02 r	0	7.0E+03 nc	1.0E+05 max	3.3E+02 nc	3.3E+03 nc
Cyanogen chloride	{	5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Free cyanide	1	2.0E-02 i		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Hydrogen cyanide	· · ·]	2.0E-02		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Potassium cyanide	1	5.0E-02 i		5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Potassium silver cyanide	1	2.0E-01 i		2.0E-01 r	0	•	1.0E+05 max	7.3E+02 nc	7.3E+03 nc
Silver cyanide	1	1.0E-01		1.0E-01 r	D	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
Sodium cyanide	1	4.0E-02		4.0E-02 r	0	3.1E+03 nc	8.2E+04 nc	1.5E+02 nc	1.5E+03 nc
Zinc cyanide	1	5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 mex	1.8E+02 nc	1.8E+03 nc
Cyclohexanone	1	5.0E+00		5.0E+00 r	0	1.0E+05 max	1.0E+05 max	1.8E+04 nc	1.8E+05 nc
Cyclohexlamine		2.0E-01		2.0E-01 r	0	1.6E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc
Cyhalothrin/Karate	ĺ	5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Cypermethrin		1.0E-02	i	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
Cyromazine	İ	7.5E-03	i	7.5E-03 r	0	5.9E+02 nc	1.5E+04 nc	2.7E+01 nc	2.7E+02 nc
Dacthal	İ	5.0E-01	i	5.0E-01 r	0	3.9E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 nc
Dalapon	İ	3.0E-02	i	3.0E-02 r	0	2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 no
Danitol	İ	5.0E-04	•	5.0E-04 r	0	3.9E+01 nc	1.0E+03 nc	1.8E+00 nc	1.8E+01 nc
DDD	2.4E-01 i		2.4E-01 r	į	0	7.1E+00 ca	2.4E+01 ca	3.5E-02 ca	3.5E-01 ca
DDE	3.4E-01 i		3.4E-01 r	İ	0	5.0E+00 ca	1.7E+01 ca	2.5E-02 ca	2.5E-01 ca
DDT	3.4E-01 i	5.0E-04	3.4E-01 i	5.0E-04 r	0	5.0E+00 ca	1.7E+01 ca	2.5E-02 ca	2.5E-01 ca
Decabromodiphenyl ether	į	1.0E-02	İ	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
Demeton	i	4.0E-05	i	4.0E-05 r	0	3.1E+00 nc	8.2E+01 nc	1.5E-01 nc	1.5E+00 nc
Dialiate	6.1E-02 h		6.1E-02 r		0	2.8E+01 cm	9.4E+01 ca	1.4E-01 ca	1.4E+00 ca
Diazinon	i	9.0E-04 I	1	9.0E-04 r	0	7.0E+01 nc	1.8E+03 nc	3.3E+00 nc	3.3E+01 nc

CONTAMINANT		TOXICITY V	ALUES			PRELIMINARY REMEDIATION GOALS (PRGS)					
•	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water		
!	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0 C	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)		
	! 					 					
1,4-Dibromobenzene		1.0E-02	i	1.0E-02 r		7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc		
Dibromochloromethane	8.4E-02 i	2.0E-02	i 8.4E-02 r	2.0E-02 r		2.0E+01 ca	6.8E+01 ca	1.0E-01 ca	1.0E+00 ca		
1,2-Dibromo-3-chloropropene	1.4E+00 h	5.7E-05	2.4E-03 h	5.7E-05 i	0	1.2E+00 ca	4.1E+00 ca	2.1E-01 ca	6.1E-02 ca		
1,2-Dibromoethane	8.5E+01 i		7.7E-01 i	i	1	1.8E-02 ca	5.7E-02 cm	1.1E-02 ca	9.7E-04 ca		
Di-n-butyl phthalate		1.0E-01	i	5.7E-05 r	0	7.8E+03 nc	1.0E+05 mex	2.1E-01 nc	3.7E+03 nc		
Dicemba	N LT	3.0E-02	i	3.0E-02 r	0	2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 nc		
1,2-Dichlorobenzene	AFT	9.0E-02	İ	5.7E-02 h	1	2.3E+02 sat	2.3E+02 sat	2.1E+02 nc	4.8E+02 nc		
1,3-Dichlorobenzene		8.9E-02 d	•	8.9E-02 r	1	2.8E+02 sat	2.8E+02 sat	3.2E+02 nc	6.8E+02 nc		
1,4-Dichlorobenzene	2.4E-02 h	2.0E-01 i	2.4E-02 r	2.0E-01 h	1	1.7E+01 ca	3.2E+01 ca	3.5E-01 ca	7.5E-01 ca		
3,3*-Dichlorobenzidine	4.5E-01 i		4.5E-01 r	J	0	3.8E+00 ca	1.3E+01 ca	1.9E-02 ca	1.9E-01 ca		
1,4-Dichloro-2-butene	9.3E+00 r		9.3E+00 h	j	1	1.2E-02 ca	2.1E-02 ca	9.2E-04 ca	1.9E-03 ca		
Dichlorodifluoromethane	Ì	2.0E-01	i	5.7E-02 h	1	5.9E+01 nc	8.3E+01 nc	2.1E+02 nc	5.2E+02 nc		
1,1-Dichloroethane		1.0E-01 H	1	1.4E-01 h	1	4.0E+02 sat	4.0E+02 sat	5.2E+02 nc	1.0E+03 nc		
1,2-Dichloroethane (EDC)	9.1E-02 i		9.1E-0∂ i	l	1		1.4E+00 ca	9.4E-02 ca	2.0E-01 ca		
1,1-Dichloroethylene	6.0E-01 i	9.0E-03	1.8E-0° i	9.0E-03 r	1	7.0E-02 cm	1.2E-01 cm	4.9E-02 cm	6.8E-02 ca		
1,2-Dichloroethylene (trans)		2.0E-02	i	2.0E-02 r	1	5.3E+02 nc	7.4E+02 nc	7.3E+01 nc	1.5E+02 nc		
1,2-Dichloroethylene (mixture)		9.0E-03 h	1	9.0E-03 r	1	2.8E+02 nc	3.9E+02 nc	3.3E+01 nc	6.9E+01 nc		
2,4-Dichlorophenol	ļ	3.0E-03	i	3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc		
4-(2,4-Dichlorophenoxy)butyric Acid (2,4)		8.0E-03	i	8.0E-03 r	0	6.3E+02 nc	1.6E+04 nc	2.9E+01 nc	2.9E+02 nc		
2,4-Dichlorophenoxyacetic Acid (2,4-D)		1.0E-02	i	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc		
1,2-Dichloropropane	6.8E-02 h	1.1E-03 i	6.8E-02 r	1.1E-03 i	1	1.6E+00 ca	2.8E+00 ca	1.3E-01 ca	2.6E-01 ca		
1,3-Dichloropropane	6.8E-02 r	1.1E-03	n S0-38.6	1.1E-03 r	1	2.1E+00 ca	3.6E+00 ca	1.3E-01 ca	2.6E-01 ca		
1,3-Dichtoropropene	1.8E-01 h	3.0E-04	1.3E-01 h	5.7E-03 i	1	1.0E+00 ca	1.8E+00 ca	6.6E-02 ca	1.3E-01 ca		
2,3-Dichtoropropanol	İ	3.0E-03	i	3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc		
Dichlorvos	2.9E-01 i	8.0E-04	2.9E-01 r	8.0E-04 r	0	5.9E+00 ca	2.0E+01 cm	2.9E-02 ca	2.9E-01 ca		
Dicofol	4.4E-01 x		4.4E-01 r	j	0	3.9E+00 ca	1.3E+01 ca	1.9E-02 ca	1.9E-01 ca		
Dicyclopentadiene		3.0E-02 H	1	5.7E-05 h	1	1		2.1E-01 nc	5.6E-01 nc		
Dieldrin	1.6E+01 i	5.0E-05	1.6E+01 i	5.0E-05 r	0	1.1E-01 ca	3.6E-01 ca	5.3E-04 ca	5.3E-03 ca		
Diethylene glycol, monobutyl ether	•	5.7E-03 i	1	5.7E-03 r	0	4.5E+02 nc	1.2E+04 nc	2.1E+01 nc	2.1E+02 nc		
Diethylene glycol, monoethyl ether		2.0E+00 H	1	2.0E+00 r	0	1.0E+05 max	1.0E+05 max	7.3E+03 nc	7.3E+04 nc		
Diethylforamide		1.1E-02 I	1	1.1E-02 r	0	8.6E+02 nc	2.2E+04 nc	4.0E+01 nc	4.0E+02 nc		
Di(2-ethylhexyl)adipate	1.2E-03 i	6.0E-01	1.2E-03 r	6.0E-01 r	0	1.4E+03 nc	4.8E+03 nc	7.1E+00 nc	7.1E+01 nc		
Diethyl phthalate		8.0E-01	i	8.0E-01 r	0	6.3E+04 nc	1.0E+05 max	2.9E+03 nc	2.9E+04 nc		

CONTAMINANT		TOXICITY V	ILUES			PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
	1.			!	C	!			
Diethylstilbestrol	4.7E+03 h		4.7E+03 I	·	0	3.6E-04 ca	1.2E-03 ca	1.8E-06 ca	1.8E-05 ca
Difenzoquat (Avenge)	Ì	8.0E-02	i	8.0E-02 r	0	6.3E+03 nc	1.0E+05 max	2.9E+02 nc	2.9E+03 nc
Diflubenzuron	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Diisopropyl methylphosphonate	1 + 1	8.0E-02	i	8.0E-02 r	0	6.3E+03 nc	1.0E+05 max	2.9E+02 nc	2.9E+03 nc
Dimethipin	AFT	2.0€-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Dimethoate	i	2.0E-04	i	2.0E-04 r	0	1.6E+01 nc	4.1E+02 nc	7.3E-01 nc	7.3E+00 nc
3,3'-Dimethoxybenzidine	1.4E-02 h		1.4E-02 r	·	0	1.2E+02 ca	4.1E+02 ca	6.1E-01 ca	6.1E+00 ca
Dimethylemine	Ì	5.7E-06	r	5.7E-06 x	1	2.4E-01 nc	3.4E-01 nc	2.1E-02 nc	4.4E-02 nc
N-N-Dimethylaniline	Ì	2.0E-03	ī	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
2,4-Dimethylaniline	7.5E-01 h		7.5E-01 r	· j	0	2.3E+00 ca	7.6E+00 ca	1.1E-02 ca	1.1E-01 ca
2,4-Dimethylaniline hydrochloride	5.8E-01 h		5.8E-01 r	. 1	0	2.9E+00 ca	9.9E+00 ca	1.5E-02 ca	1.5E-01 ca
3,3'-Dimethylbenzidine	9.2E+00 h		9.2E+00 r	. 1	0	1.9E-01 ca	6.2E-01 cm	9.3E-04 ca	9.3E-03 ca
1,1-Dimethylhydrazine	2.6E+00 h		3.5E+00 H	1	0	6.6E-01 ca	2.2E+00 ca	2.4E-03 ca	3.3E-02 ca
1,2-Dimethylhydrazine	3.7E+01 h		3.7E+01 F	1	0	4.6E-02 cm	1.5E-01 ca	2.3E-04 ca	2.3E-03 ca
N,N-Dimethylformamide	1	1.0E-01	h	8.6E-03 i	0	7.8E+03 nc	1.0E+05 max	3.1E+01 nc	3.7E+03 nc
2,4-Dimethylphenol	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
2,6-Dimethylphenol	İ	6.0E-04	i	6.0E-04 r	0	4.7E+01 nc	1.2E+03 nc	2.2E+00 nc	2.2E+01 nc
3,4-Dimethylphenol	1	1.0E-03	i	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
Dimethyl phthalate	Ì	1.0E+01	h	1.0E+01 r	0	1.0E+05 max	1.0E+05 max	3.7E+04 nc	3.7E+05 nc
Dimethyl terephthalate	İ	1.0E-01	í	1.0E-01 r	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
4,6-Dinitro-o-cyclohexyl phenol	İ	2.0E-03	i	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
1,3-Dinitrobenzene	1	1.0E-04	i	1.0E-04 r	0	7.8E+00 nc	2.0E+02 nc	3.6E-01 nc	3.7E+00 nc
1,2-Dinitrobenzene	İ	4.0E-04	h	4.0E-04 r	0	3.1E+01 nc	8.2E+02 nc	1.5E+00 nc	1.5E+01 nc
1,4-Dinitrobenzene	Ì	4.0E-04	h	4.0E-04 r	0	3.1E+01 nc	8.2E+02 nc	1.5E+00 nc	1.5E+01 nc
2,4-Dinitrophenol	İ	2.0E-03	i	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Dinitrotaluene mixture	6.8E-01 i		6.8 E-01 r	•	0	2.5E+00 ca	8.4E+00 ca	1.3E-02 ca	1.3E-01 ca
2,4-Dinitrotoluene	j	2.0E-03	i	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
2,6-Dinitrotoluene	6.8E-01 i		6.8E-01 i	· į	0	2.5E+00 ca	8.4E+00 ca	1.3E-02 ca	1.3E-01 ca
Dinoseb	İ	1.0E-03	i	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
di-n-Octyl phthalate	1	2.0E-02	h	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
1,4-Dioxane	1.1E-02 i		1.18-02 /	. 1	1	3.2E+01 ca	6.0E+01 ca	7.7E-01 ca	1.6E+00 ca
Diphenamid	1	3.0E-02	i	3.0E-02 r		2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 nc
Diphenylamine	1	2.5E-02	i	2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc

CONTAMINANT	1	TOXICITY V	ALUES			PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
	oSF	oRfD	iSF	iRfD	v	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d) 	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0 C	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
1,2-Diphenythydrazine	8.0E-01 i		7.7E-01 i	[<u> </u>	2.1E+00 ca	7.2E+00 ca	1.1E-02 ca	1.1E-01 ca
Diquat		2.2E-03	i	2.2E-03 r	0	1.7E+02 nc	4.5E+03 nc	8.0E+00 nc	8.0E+01 nc
Direct black 38	8.6E+00 h		8.6E+00 r	·	0	2.0E-01 ca	6.7E-01 ca	9.9E-04 ca	9.9E-03 ca
Direct blue 6	8.1E+00 h		8.1E+00 r	·	0	2.1E-01 ca	7.1E-01 ca	1.1E-03 ca	1.1E-02 ca
Direct brown 35	9.3E+00 h		9.3E+00 r	·	0	1.8E-01 ca	6.2E-01 ca	9.2E-04 ca	9.2E-03 ca
Disulfoton		4.0E-05 i		4.0E-05 r	0	3.1E+00 nc	8.2E+01 nc	1.5E-01 nc	1.5E+00 nc
Diuron	AFT	2.0E-03 i		2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Dodine DR	176	4.0E-03 i		4.0E-03 r	0	3.1E+02 nc	8.2E+03 nc	1.5E+01 nc	1.5E+02 nc
Endosulfan	Î	5.0E-05 i		5.0E-05 r	0	3.9E+00 nc	1.0E+02 nc	1.8E-01 nc	1.8E+00 nc
Endothall	ĺ	2.0E-02 i		2.0E-02 r	0	1.6E+03 ca	4.1E+04 ca	7.3E+01 ca	7.3E+02 cm
Endrin		3.0E-04 i		3.0E-04 r	0	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
Epichlorohydrin	9.9E-03 i	2.0E-03 ×	4.2E-03 i	2.9E-04 i	1	3.0E+01 nc	4.3E+01 nc	1.0E+00 nc	2.7E+00 nc
1,2-Epoxybutane		5.7E-03 r		5.7E-03 i)	0 j	4.5E+02 nc	1.2E+04 nc	2.1E+01 nc	2.1E+02 nc
EPTC (S-Ethyl dipropylthiocarbamate)		2.5E-02 i		2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Ethephon (2-chloroethyl phosphonic acid)		5.0E-03 i		5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Ethion		5.0E-04 i		5.0E-04 r	0	3.9E+01 nc	1.0E+03 nc	1.8E+00 nc	1.8E+01 nc
2-Ethoxyethanol		4.0E-01 h		5.7E-02 i	0	3.1E+04 nc	1.0E+05 max	2.1E+02 nc	1.5E+04 nc
2-Ethoxyethanol acetate		3.0E-01 h		3.0E-01 r	0 j	2.3E+04 nc	1.0E+05 max	1.1E+03 nc	1.1E+04 nc
Ethyl acetate		9.0E-01 i		9.0E-01 r	o j	7.0E+04 nc	1.0E+05 max	3.3E+03 nc	3.3E+04 nc
Ethyl acrylate	4.8E-02 h		4.8E-02 r	į	1 j	8.6E-01 ca	1.5E+00 ca	1.8E-01 ca	3.7E-01 ca
Ethylbenzene		1.0E-01 i		2.9E-01 i	1	6.8E+01 sat	6.8E+01 sat	1.1E+03 nc	1.6E+03 nc
Ethylene cyanohydrin		3.0E-01 h		3.0E-01 r	0	2.3E+04 nc	1.0E+05 mex	1.1E+03 nc	1.1E+04 nc
Ethylene diamine	 	2.0E-02 h		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Ethylene glycol		2.0E+00 i		2.0E+00 r	οj	1.0E+05 max	1.0E+05 max	7.3E+03 nc	7.3E+04 nc
Ethylene glycol, monobutyl ether		5.7E-03 r		5.7E-03 h	0	4.5E+02 nc	1.2E+04 nc	2.1E+01 nc	2.1E+02 nc
Ethylene oxide	1.0E+00 h		3.5E-01 h	•	1	2.6E-01 cm	4.7E-01 ca	2.4E-02 ca	3.6E-02 cm
Ethylene thiourem (ETU)	6.0E-01 h	8.0E-05 i	6.0E-01 r	8.0E-05 r	•	2.8E+00 ca	9.5E+00 ca	1.4E-02 ca	1.4E-01 ca
Ethyl chloride		2.0E-02 c		2.9E+00 i	•	2.7E+02 sat	2.7E+02 sat	1.0E+04 nc	7.1E+02 nc
Ethyl ether		2.0E-01 i		2.0E-01 r	1	3.8E+03 sat	3.8E+03 sat	7.3E+02 nc	1.5E+03 nc
Ethyl methacrylate		9.0E-02 h		9.0E-02 r	:	3.8E+01 sat	3.8E+01 sat	3.3E+02 nc	6.9E+02 nc
Ethyl p-nitrophenyl phenylphosphorothioa		1.0E-05 i		1.0E-05 r	0	7.8E-01 ca	2.0E+01 ca	3.7E-02 ca	3.7E-01 ca
Ethylphthalyl ethyl glycolate		3.0E+00 i		3.0E+00 r	o j	1.0E+05 max	1.0E+05 max	1.1E+04 nc	1.1E+05 nc
Express		8.0E-03 1		8.0E-03 r	o j		1.6E+04 nc	2.9E+01 nc	2.9E+02 nc

CONTAMINANT	İ	TOXICITY V	ALUES			PRELIMINARY REMEDIATION GOALS (PRGS)						
	OSF	oRfD	iSF	iRfD	V	Residential	Industrial	Ambient Air	Tap Water			
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)			
	1			!	С							
Fenamiphos		2.5E-04	i	2.5E-04 r	0	2.0E+01 nc	5.1E+02 nc	9.1E-01 nc	9.1E+00 nc			
Fluometuron	1	1.3E-02	i	1.3E-02 r	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc			
Fluoride		6.0E-02	i	6.0E-02 r	0	4.7E+03 nc	1.0E+05 max	2.2E+02 nc	2.2E+03 nc			
Fluoridone	İ	8.0E-02	i	8.0E-02 r	0	6.3E+03 nc	1.0E+05 max	2.9E+02 nc	2.9E+03 nc			
Flurprimidol	İ	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc			
flutolanil	İ	6.0E-02	í	6.0E-02 r	0	4.7E+03 nc	1.0E+05 max	2.2E+02 nc	2.2E+03 nc			
fluvalinate	1	1.0E-02	i	1.0E-02 r	Ð	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc			
Folpet	3.5E-03 i	1.0E-01	i 3.5E-03 r	1.0E-01 r	0	4.9E+02 ca	1.6E+03 ca	2.4E+00 ca	2.4E+01 ca			
Fomesafen	1.9E-01 i		1.9E-01 r	·	0	9.0E+00 ca	3.0E+01 ca	4.5E-02 ca	4.5E-01 ca			
Fonofos	ĺ	2.0E-03	i	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc			
Format dehyde	4.5E-02 r	2.0E-01	i 4.5E-02 i	2.0E-01 r	0	3.7E+01 ca	1.3E+02 ca	1.9E-01 ca	1.9E+00 ca			
Formic Acid Fosetyl-al Propertyl-al	V III J	2.0E+00	h	2.0E+00 r	0	1.0E+05 max	1.0E+05 mex	7.3E+03 nc	7.3E+04 nc			
Fosetyl-al UN	<i>P</i> (1) 1	3.0E+00	i	3.0E+00 r	0	1.0E+05 max	1.0E+05 max	1.1E+04 nc	1.1E+05 nc			
Furan		1.0E-03	i	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc			
Furazolidone	3.8E+00 h			ĺ	0	4.5E-01 ca	1.5E+00 ca	1.0E+09 ca	2.2E-02 ca			
Furfural	1	3.0E-03	i	1.4E-02 h	0	2.3E+02 nc	6.1E+03 nc	5.2E+01 nc	1.1E+02 nc			
Furium	5.0E+01 h		5.0E+01 r	1	0	3.4E-02 ca	1.1E-01 ca	1.7E-04 ca	1.7E-03 ca			
Furmecyclox	3.0E-02 i		3.0E-02 r	İ	0	5.7E+01 ca	1.9E+02 cm	2.8E-01 ca	2.8E+00 ca			
Glufosinate-ammonium	1	4.0E-04	i	4.0E-04 r	0	3.1E+01 nc	8.2E+02 nc	1.5E+00 nc	1.5E+01 nc			
Glycidaldehyde	1	4.0E-04	i	2.9E-04 h	0	3.1E+01 nc	8.2E+02 nc	1.0E+00 nc	1.5E+01 nc			
Glyphosate	1	1.0E-01	i	1.0E-01 r	0	7.8E+03 nc	1.0E+05 mex	3.7E+02 nc	3.7E+03 nc			
Haloxyfop-methyl	1	5.0E-05	i	5.0E-05 r	0	3.9E+00 nc	1.0E+02 nc	1.8E-01 nc	1.8E+00 nc			
Harmony		1.3E-02	i	1.3E-02 r	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc			
Heptachlor	4.5E+00 i	5.0E-04	i 4.5E+00 i	5.0E-04 r	0	3.8E-01 ca	1.3E+00 ca	1.9E-03 ca	1.9E-02 ca			
Heptachlor epoxide	9.1E+00 i	1.3E-05	i 9.1E+00 i	1.3E-05 r	0	1.9E-01 ca	6.3E-01 ca	9.4E-04 ca	9.4E-03 ca			
Hexabromobenzene	i	2.0E-03	i	2.0E-03 r		1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc			
Hexachlorobenzene	1.6E+00 i	8.0E-04	i 1.6E+00 i		o i	1.1E+00 ca	3.6E+00 ca	5.3E-03 ca	5.3E-02 ca			
Hexachlorobutadiene	7.8E-02 i	2.0E-03	i 7.7E-02 i	2.0E-03 r	0 1	2.2E+01 ca	7.3E+01 ca	1.1E-01 ca	1.1E+00 ca			
HCH (alpha)	6.3E+00 i		6.3E+00 i		0	2.7E-01 ca	9.1E-01 ca	1.4E-03 ca	1.4E-02 ca			
HCH (beta)	1.8E+00 i		1.8E+00 i	i	0	9.5E-01 ca	3.2E+00 ca	4.7E-03 ca	4.7E-02 ca			
HCH (gamma) Lindane	1.1E+00 i	3.0E-04	i 1.1E+00 r	3.0E-04 r	o j	1.5E+00 ca	5.2E+00 ca	7.7E-03 cm	7.7E-02 ca			
HCH-technical	1.8E+00 i		1.8E+ 00 i	i	οj	9.5E-01 ca	3.2E+00 ca	4.8E-03 ca	4.7E-02 ca			
Hexachlorocyclopentadiene	\	7.0E-03	i	2.0E-05 h	o i	5.5E+02 nc	1.4E+04 nc	7.3E-02 nc	2.6E+02 nc			

CONTAMINANT	l	TOXICITY V	LUES		ł	PRELIM	INARY REMEDIATION G	DALS (PRGS)	
	oSF	oRfD	iSF	iRfD	V	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0 C	Soil (mg/kg) 	Soil (mg/kg)	(ug/m³)	(ug/l)
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Hexachlorodibenzo-p-dioxin mixture (HxC	•		4.6E+03 i	1	0		9.2E-04 ca	1.9E-06 ca	1.4E-05 c
Hexachloroethane	1.4E-02 i					7.8E+01 nc	4.1E+02 ca	6.1E-01 ca	6.1E+00 c
Hexachlorophene	1	3.0E-04 i		3.0E-04 r	•	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 n
n-Hexane	1	6.0E-02 h		5.7E-02 i	•	4.7E+03 nc	1.0E+05 max	2.1E+02 nc	2.2E+03 n
Hexazînone	1 7 00.00 :	3.3E-02 i		3.3E-02 r	•		6.7E+04 nc	1.2E+02 nc	1.2E+03 n
Hydrazine, hydrazine sulfate	3.0E+00 i		1.7E+01 i		0	5.7E-01 ca	1.9E+00 ca	5.0E-04 ca	2.8E-02 c
Hydrogen chloride		2.0E-03 r		2.0E-03 i	•	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 n
Hydrogen sulfide p-Hydroquinone Imazalil Imazacuin		3.0E-03 i		2.6E-04 i		•		9.4E-01 nc	2.4E+00 m
p-Hydroquinone R	Fig. n	4.0E-02 h		4.0E-02 r		•	8.2E+04 nc	1.5E+02 nc	1.5E+03 m
Imazalil	1	1.3 E-02 i		1.3E-02 r			2.7E+04 nc	4.7E+01 nc	4.7E+02 n
1 ma Larquitt	!	2.5E-01 i		2.5E-01 r		•	1.0E+05 max	9.1E+02 nc	9.1E+03 m
Iprodione		4.0E-02 i		4.0E-02 r			8.2E+04 nc	1.5E+02 nc	1.5E+03 n
Isobutanol	1	3.0E-01 i		3.0E-01 r		•	1.0E+05 max	1.1E+03 nc	1.1E+04 n
I sophorone	9.5E-04 i	2.0E-01 i	9.5E-04 r	2.0E-01 r	0	1.8E+03 ca	6.0E+03 ca	9.0E+00 ca	9.0E+01 c
Isopropalin	1	1.5E-02 i		1.5E-02 r		•	3.1E+04 nc	5.5E+01 nc	5.5E+02 n
Isopropyl methyl phosphonic acid		1.0E-01 i		1.1E-01 rj	0	7.8E+03 nc	1.0E+05 max	4.0E+02 nc	3.7E+03 n
1 soxaben	1	5.0E-02 i		5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 n
Kepone	1.8E+01 e		1.8E+/ r	· [0	9.5E-02 ca	3.2E-01 ca	4.7E-04 ca	4.7E-03 c
Lactofen	1	2.0E-03 i		2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 n
Lend	PRG Based on	<mark>Uptake Bi</mark> okin	etic Mode: (U	BK)	0	5.0E+02 nc			5.0E+00 m
Linuron		2.0E-03 i		2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 m
Lithium		2.0E-02 e		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 m
Londax	Ì	2.0E-01 i		2.0E-01 r	0	1.6E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 n
Malathion	1	2.0E-02 i		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 m
Maleic anhydride	İ	1.0E-01 i		1.0E-01 r	0	7.8E+03 nc	1.0E+05 mex	3.7E+02 nc	3.7E+03 n
Maleic hydrazide	i	5.0E-01 i		5.0E-01 r	0	3.9E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 n
Malononitrile	i	2.0E-05 h		2.0E-05 r		1.6E+00 nc	4.1E+01 nc	7.3E-02 nc	7.3E-01 n
Mancozeb	i	3.0E-02 h		3.0E-02 r		2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 n
Maneb	i	5.0E-03 i		5.0E-03 r			1.0E+04 nc	1.8E+01 nc	1.8E+02 n
Manganese and compounds	İ	1.0E-01 h		i	0		2.0E+05 nc		3.7E+03 n
Mephosfolan	İ	9.0E-05 h		9.0E-05 ri			1.8E+02 nc	3.3E-01 nc	3.3E+00 n
Mepi qua t	İ	3.0E-02 i		3.0E-02 r			6.1E+04 nc	1.1E+02 nc	1.1E+03 n
Mercury and compounds (methyl)	i	3.0E-04 i		1	0	•	6.1E+02 nc		1.1E+01 no

CONTAMINANT		TOXICITY V	ALUES	1		PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
_ K	oSF	oR fD	iSF	iRfD	V	Residential	Industrial	Ambient Air	Tap Water
DRAFT	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0 C	Soil (mg/kg) 	Soil (mg/kg)	(ug/m³)	(ug/l)
Mercury and compounds (inorganic)		3.0E-04	h	8.6E-05 h	<u> </u>	2.3E+01 nc	6.1E+02 nc	3.1E-01 nc	1.1E+01 nc
Herphos		3.0E-05	i	3.0E-05 r	0	2.3E+00 nc	6.1E+01 nc	1.1E-01 nc	1.1E+00 nc
Merphos oxide		3.0E-05	i	3.0E-05 r	0	2.3E+00 nc	6.1E+01 nc	1.1E-01 nc	1.1E+00 nc
Metalaxyl		6.0E-02	i	6.0E-02 r	0	4.7E+03 nc	1.0E+05 max	2.2E+02 nc	2.2E+03 nc
Methacrylonitrile		1.0E-04	i	2.0E-04 h	1	5.8E+00 nc	8.1E+00 nc	7.3E-01 nc	1.3E+00 nc
Methamidophos		5.0E-05	i	5.0E-05 r	0	3.9E+00 nc	1.0E+02 nc	1.8E-01 nc	1.8E+00 nc
Methanol		5.0E-01	i	5.0E-01 r	0	3.9E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 nc
Methidathion		1.0E-03	i	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
Methomyl		2.5E-02	i	2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Methoxychlor		5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
2-Methoxyethanol		4.0E-03	h	5.7E-03 i	0	3.1E+02 nc	8.2E+03 nc	2.1E+01 nc	1.5E+02 nc
2-Methoxyethanol acetate		2.0E-03	h	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
2-Methoxy-5-nitroaniline	4.6E-02 h		4.6E-02 r	j	0	3.7E+01 cm	1.2E+02 ca	1.9E-01 ca	1.9E+00 cm
Methyl acetate		1.0E+00	h	1.0E+00 r	0	1.5E+04 sat	1.5E+04 sat	3.7E+03 nc	3.7E+04 nc
Methyl acrylate		3.0E-02	h	3.0E-02 r	1	1.1E+02 sat	1.1E+02 sat	1.1E+02 nc	2.3E+02 nc
2-Methylaniline (o-toluidine)	2.4E-01 h		2.4E-01 r	j	0	7.1E+00 cm	2.4E+01 ca	3.5E-02 ca	3.5E-01 ca
2-Methylaniline hydrochloride	1.8E-01 h		1.8E-01 r	i	0	9.5E+00 ca	3.2E+01 ca	4.7E-02 ca	4.7E-01 ca
Methyl chlorocarbonate		1.0E+00	x	1.0E+00 r	0	7.8E+04 nc	1.0E+05 max	3.7E+03 nc	3.7E+04 nc
2-Methyl-4-chlorophenoxyacetic acid		5.0E-04	i	5.0E-04 r	0	3.9E+01 nc	1.0E+03 nc	1.8E+00 nc	1.8E+01 nc
4-(2-Methyl-4-chlorophenoxy) butyric acil		1.0E-02	i	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
2-(2-Methyl-4-chlorophenoxy) propionic a		1.0E-03	į	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
2-(2-Methyl-1,4-chlorophenoxy) propionic		1.0E-03	í	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
Methylcyclohexane [8.6E-01	r	8.6E-01 h	0	6.7E+04 nc	1.0E+05 max	3.1E+03 nc	3.1E+04 nc
4,4'-Methylenediphenyl isocyanate		5.7E-06	r	5.7E-06 h	0	4.5E-01 nc	1.2E+01 nc	2.1E-02 nc	2.1E-01 nc
4,4'-Methylenebisbenzeneamine	2.5E-01 h		2.5E 01 r	i	0	6.8E+00 ca	2.3E+01 ca	3.4E-02 ca	3.4E-01 ca
4,4'-Methylene bis(2-chloroaniline)	1.3E-01 h		h 1.3E-01 h	7.0E-04 r	0	1.3E+01 ca	4.4E+01 ca	6.6E-02 ca	6.6E-01 ca
4,4'-Methylene bis(N,N'-dimethyl)aniline	4.6E-02 i		4.6E-02 r	· i	0	3.7E+01 ca	1.2E+02 ca	1.9E-01 ca	1.9E+00 ca
Methylene bromide		1.0E-02	h	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
Methylene chloride	7.5E-03 i	5.0E-02	i 1.6E-03 i	8.6E-01 h	1	3.4E+01 ca	6.2E+01 ca	5.2E+00 ca	6.2E+00 ca
Methyl ethyl ketone		5.0E-02	h	2.9E-01 i		5.2E+02 sat	5.2E+02 sat	1.0E+03 nc	1.1E+03 nc
Methyl hydrazine	1.1E+00 h		1.1E+00 r	i	0	1.5E+00 ca	5.2E+00 ca	7.7E-03 ca	7.7E-02 ca
Methyl isobutyl ketone		5.0E-02	h	2.3E-02 h	0	3.9E+03 nc	1.0E+05 max	1.0E+09 nc	1.8E+03 nc
Methyl methacrylate		8.0E-02	h	8.0E-02 r		6.3E+03 nc	1.0E+05 max	2.9E+02 nc	2.9E+03 nc

CONTAMENANT	1	TOXICITY V	LUES			PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
DRAFT	1/(mg/kg-d) 	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	C 0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
2-Methyl-5-nitrosniline			3.3E-0		_	5.2E+01 ca	1.7E+02 ca	2.6E-01 ca	2.6E+00 ca
Methyl parathion	i	2.5E-04 i		2.5E-04 r	0	2.0E+01 nc	5.1E+02 nc	9.1E-01 nc	9.1E+00 nc
2-Methylphenol	j	5.0E-02 >		5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
3-Methylphenol	i	5.0E-02 ×		5.0E-02 r[0	3.9E+03 nc	1.0E+05 mex	1.8E+02 nc	1.8E+03 nc
4-Methylphenol	İ	5.0E-03 I		5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Methyl styrene (mixture)	ĺ	6.0E-03 h		1.1E-02 h	1	8.0E+03 nc	1.1E+04 nc	4.2E+01 nc	7.4E+01 nc
Methyl styrene (alpha)	Ì	7.0E-02 F		7.0E-02 r	1	1.3E+03 sat	1.3E+04 sat	2.6E+02 nc	5.4E+02 nc
Methyl tertbutyl ether (MTBE)	j	5.0E-03 e		1.4E-01 i	0	3.9E+02 nc	1.0E+04 nc	5.2E+02 nc	1.8E+02 nc
Metolacior (Dual)	ĺ	1.5E-01 i		1.5E-01 r	0	1.2E+04 nc	1.0E+05 max	5.5E+02 nc	5.5E+03 nc
Metribuzin	1	2.5E-02 i		2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Mirex	1.8E+00 h	2.0E-04 i	1.8E+00 r	2.0E-04 r	0	1.6E+01 ca	4.1E+02 ca	4.7E-03 ca	7.3E+00 ca
Molinate	1	2.0E-03 i		2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Holy bdenum	· [5.0E-03 h		5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Monochloramine	1	1.0E-01 h		1.0E-01 h	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
Naled	1	2.0E-03 i		2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Napro pemi de	}	1.0E-01 i		1.0E-01 r	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
Nickel and compounds	1	2.0E-02 i		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Nickel refinery dust	1		8.4E-01 i	i	0			1.0E-02 ca	
Nickel subsulfide	1		1.7E+00 i	}	0			5.0€-03 ca	
Nitrapyrin	1	1.5E-03 x		1.5E-03 r	0	1.2E+02 nc	3.1E+03 nc	5.5E+00 nc	5.5E+01 nc
Vitrate	1	1.6E+00 i		1.6E+00 r	0	1.0E+05 max	1.0E+05 max	5.8E+03 nc	5.8E+04 nc
Nitric Oxide	1	1.0E-01 i		1.0E-01 r	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
litrite	1	1.0E-01 i		1.0E-01 r	0	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
2-Nitroaniline		6.0E-05 h		5.7E-05 h	0	4.7E+00 nc	1.2E+02 nc	2.1E-01 nc	2.2E+00 nc
3-Nitroaniline		3.0E-03 o		3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc
4-Nitroaniline	Ì	3.0E-03 o		3.0E-03 r	o i	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc
Hitrobenzene		5.0E-04 i		5.7E-04 h	0	3.9E+01 nc	1.0E+03 nc	2.1E+00 nc	1.8E+01 nc
Nitrofurantoin		7.0E-02 h		7.0E-02 r	0	5.5E+03 nc	1.0E+05 max	2.6E+02 nc	2.6E+03 nc
litrofurazone	1.5E+00 h		9.4E+00 h	i	0	1.1E+00 ca	3.8E+00 ca	9.1E-04 ca	5.7E-02 ca
litrogen dioxide		1.0E+00 i		1.0E+00 r	1			3.7E+03 nc	7.7E+03 nc
litroguan idin e	1	1.0E-01 i		1.0E-01 r	o į	7.8E+03 nc	1.0E+05 max	3.7E+02 nc	3.7E+03 nc
6-Nitrophenol	1			İ	0				
2-Nitropropane	9.4E+00 r	5.7 E-03 r	9.4E+00 h	5.7E-03 i	1			9.1E-04 ca	4.4E+01 ca

CONTAMINANT DRAF	ĺ	TOXICITY V	ALUES	ł		PRELIMINARY REMEDIATION GOALS (PRGS)					
DIV.	oSF	oRfD	isf	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water		
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	о С	Soil (mg/kg) 	Soil (mg/kg)	(ug/m3)	(ug/l)		
N-Nitrosodi-n-butylamine	5.4E+00 i		5.6E+00 i	İ	0	3.2E-01 ca	1.1E+00 ca	1.5E-03 ca	1.6E-02 ca		
N-Witrosodiethanolamine	2.8E+00 i		2.8E+00 r	· i	0	6.1E-01 ca	2.0E+00 ca	3.0E-03 ca	3.0E-02 ca		
N-Nitrosodiethylamine	1.5E+02 i		1.5E+02 i	i	0	1.1E-02 ca	3.8E-02 ca	5.7E-05 ca	5.7E-04 ca		
N-Nitrosodimethylamine	5.1E+01 i		4.9E+0 i	i	0	3.3E-02 ca	1.1E-01 ca	1.7E-04 ca	1.7E-03 ca		
N-Nitrosodiphenylamine	4.9E-03 i		4.9E-0	:	0	3.5E+02 ca	1.2E+03 ca	1.7E+00 ca	1.7E+01 ca		
N-Nitroso di-n-propylamine	7.0E+00 i		7.0E+01 f	· i	Đ	2.4E-01 ca	8.2E-01 ca	1.2E-03 ca	1.2E-02 ca		
N-Nitroso-N-methylethylamine	2.2E+01 i		2.2E+0 i r	· i	0	7.7E-02 ca	2.6E-01 ca	3.9E-04 ca	3.9E-03 ca		
N-Nitrosopyrrolidine	2.1E+00 i		2.1E+0 i	:	0	8.1E-01 ca	2.7E+00 ca	4.0E-03 cm	4.1E-02 ca		
m-Nitrotoluene		1.0E-02	h:	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 no		
p-Nitrotoluene		1.0E-02	h	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 no		
Norflurazon		4.0E-02	ī	4.0E-02 r	0	į					
NuStar		7.0E-04	1	7.0E-04 r	0	5.5E+01 nc	1.4E+03 nc	2.6E+00 nc	2.6E+01 no		
Octabromodiphenyl ether		3.0E-03	•	3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 no		
Octahydro-1357-tetranitro-1357- tetrazoc		5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc		
Octamethyl pyrophosphoramide		2.0E-03	h	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc		
Oryzalin	•	5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc		
Oxadiazon		5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc		
Oxemyt		2.5E-02	i	2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 no		
Oxyfluorfen		3.0E-03	i	3.0E-03 r	0	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 no		
Paclobutrazol		1.3E-02	i	1.3E-02 r	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	4.7E+02 no		
Paraquat		4.5E-03	i	4.5E-03 r	0	3.5E+02 nc	9.2E+03 nc	1.6E+01 nc	1.6E+02 no		
Parathion		6.0E-03	h	6.0E-03 r	0	4.7E+02 nc	1.2E+04 nc	2.2E+01 nc	2.2E+02 nc		
Pebulate	i	5.0E-02	h	5.0E-02 r	0	3.9E+03 nc	1.0E+05 mex	1.8E+02 nc	1.8E+03 no		
Pendimethalin		4.0E-02	i	4.0E-02 r	0	3.1E+03 nc	8.2E+04 nc	1.0E+09 nc	1.5E+03 no		
Pentabromo-6-chloro cyclohexane	2.3E-02 h		2.3E-02 i	· j	0	7.4E+01 ca	2.5E+02 ca	3.7E-01 ca	3.7E+00 ca		
Pentabromodiphenyl ether		2.0E-03	i	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 no		
Pentachlorobenzene		8.0E-04		8.0E-04 r		6.3E+01 nc	1.6E+03 nc	2.9E+00 nc	2.9E+01 no		
Pentachloroni trobenzene	2.6E-01 h	3.0E-03	i 2.6E-01 i	3.0E-03 r	0	6.6E+00 ca	2.2E+01 ca	3.3E-02 ca	3.3E-01 ca		
Pentachi orophenol	1.2E-01 i	3.0E-02	i 1.2E-01	3.0E-02 r	0	1.4E+01 ca	4.8E+01 ca	7.1E-02 cm	7.1E-01 ca		
Permethrin	ĺ	5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 no		
Phermedipham	İ	2.5E-01	i	2.5E-01 r	0	2.0E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 no		
Phenol	İ	6.0E-01	i	6.0E-01 r	0	4.7E+04 nc	1.0E+05 max	2.2E+03 nc	2.2E+04 no		
m-Phenylenediamine	1	6.0E-03	i	6.0E-03 r	0	4.7E+02 nc	1.2E+04 nc	2.2E+01 nc	2.2E+02 nc		

CONTAMINANT CONTAMINANT		TOXICITY V	ALUES	l		PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
1) K 3-68	oSF	oRfD	iSF	iRfD	V	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg) 	Soil (mg/kg)	(ug/m3)	(ug/l)
p-Phenylenediamine		1.9E-01 P	<u> </u>	1.9E-01 r[<u> </u>	1.5E+04 nc	1.0E+05 max	6.9E+02 nc	6.9E+03 r
Phenylmercuric acetate	j	8.0E-05		8.0E-05 r	0	6.3E+00 nc	1.6E+02 nc	2.9E-01 nc	2.9E+00 r
Phenylphenol	1.9E-03 h		1.9E-03 r	i	0	8.8E+02 ca	3.0E+03 ca	4.5E+00 ca	4.4E+01 c
Phorate Phorate	j	2.0E-04 h	1	2.0E-04 r	0	1.6E+01 nc	4.1E+02 nc	7.3E-01 nc	7.3E+00 r
Phosmet	i	2.0E-02 i		2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 r
Phos phine	İ	3.0E-04 h	1	8.6E-06 h	0	2.3E+01 nc	6.1E+02 nc	3.1E-02 nc	1.1E+01 r
Phosphorus (white)	ĺ	2.0E-05 i		2.0E-05 r	0			7.3E-02 nc	
p-Phthalic acid	į	1.0E+00 h		1.0E+00 rj	0	j		3.7E+03 nc	
Phthalic anhydride	1	2.0E+00 i		3.4E-02 h	0	Ì		1.2E+02 nc	
Picloram	1	7.0E-02 i		7.0E-02 r	0	5.5E+03 nc	1.0E+05 max	2.6E+02 nc	2.6E+03
Pirimiphos-methyl	1	1.0E-02 i		1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02
Polybrominated biphenyls	8.9E+00 h	7.0E-06 h	8.9E+00 r	7.0E-06 r	0	5.5E-01 cm	6.4E-01 ca	9.6E-04 ca	2.6E-01
Polychlorinated biphenyls (PCBs)	7.7E+00 i		7.7E+00 r	Ì	0	2.2E-01 cm	7.4E-01 ca	1.1E-03 ca	1.1E-02
Polychlorinated terphenyls (PCTs)	4.5E+00 e		4.5E+00 r	ĺ	0	3.8E-01 cm	1.3E+00 ca	1.9E-03 ca	1.9E-02
Polynuclear aromatic hydrocarbons	1			i	ĺ				
Acenaphthene	1	6.0E-02 i		6.0E-02 r	1	3.6E+01 sat	3.6E+01 sat	2.2E+02 nc	4.6E+02
Anthracene	1	3.0E-01 i		3.0E-01 r	1	1.9E+00 sat	1.9E+00 sat	1.1E+03 nc	2.3E+03
Benz [a] anthracene	5.8E-01 t		5.8E-01 r	İ	0	2.9E+00 ca	9.9E+00 ca	1.5E-02 ca	1.5E-01
Benzo [b] fluoranthene	5.8E-01 t		5.8E-01 r	Ì	0	2.9E+00 ca	9.9E+00 ca	1.5E-02 ca	1.5E-01
Benzo[k] fluoranthene	5.8E-01 t		5.8 E- 01 r	i	0	2.9E+00 ca	9.9E+00 ca	1.5E-02 ca	1.5E-01
Benzo[a] pyrene	5.8E+00 i		5.8E+00 r	i	0	2.9E-01 ca	9.9E-01 ca	1.5E-03 ca	1.5E-02
Chrysene	5.8E-03 t		2.7E-02 r	İ	0	2.9E+02 ca	9.9E+02 ca	3.2E-01 ca	1.5E+01
Dibenz[sh] anthracene	5.8E+00 t		6.8E+00 r	i	0	2.9E-01 ca	9.9E-01 ca	1.3E-03 ca	1.5E-02
Fluoranthene	j	4.0E-02 i		4.0E-02 rl	o i	3.1E+03 nc	8.2E+04 nc	1.5E+02 nc	1.5E+03
Fluorene	ĺ	4.0E-02 i		4.0E-02 r	1		2.8E+01 sat	1.5E+02 nc	3.1E+02
Indeno[1,2,3-cd]pyrene	5.8E-01 t		5.8E-01 r	i	0	2.9E+00 ca	9.9E+00 ca	1.5E-02 ca	1.5E-01
Haphthalene	i	4.0E-03 i		4.0E-03 r	1 1	8.0E+01 sat	8.0E+01 sat	1.5E+01 nc	3.1E+01
Phenanthrene	i			i	ı i				3112-31
Pyrene	İ	3.0E-02 i		3.0E-02 r	o i	2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 (
Prochloraz	1.5E-01 i	9.0E-03 i	1.5E-01 r	9.0E-03 r	0	7.0E+02 ca	1.8E+04 ca	5.7E-02 ca	3.36+02
Prof turatin	1	6.0E-03 h		6.0E-03 r	0		1.2E+04 nc	2.2E+01 nc	2.2E+02
Prometon	1	1.5E-02 i		1.5Е-02 г	0		3.1E+04 nc	5.5E+01 nc	5.5E+02
Prometryn	1	4.0E-03 i		4.0E-03 r	0	3.1E+02 nc	8.2E+03 nc	1.5E+01 nc	1.5E+02

CONTAMINANT		TOXICITY V	ILUES			PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
- 4 5 7	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
DRAFT	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0 C	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
Pronamide	_	7.5E-02	j	7.5E-02 r	0	5.9E+03 nc	1.0E+05 max	2.7E+02 nc	2.7E+03 nc
Propachlor		1.3E-02	i	1.3E-02 r	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc
Propanil	1	5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Propargite	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Propargyl alcohol		2.0E-03	i	2.0E-03 r	0	1.6E+02 nc	4.1E+03 nc	7.3E+00 nc	7.3E+01 nc
Propazine	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Propham	1	2.0E-02	i	2.0E-02 r	0	1.6E+03 nc	4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Propiconazole	1	1.3E-02	i	1.3E-02 rj	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	1.0E-09 nc
Propylene glycol	1	2.0E+01	h	2.0E+01 r	0	1.0E+05 max	1.0E+05 max	7.3E+04 nc	7.3E+05 nc
Propylene glycol, monoethyl ether	1	7.0E-01	h	7.0E-01 r	0	5.5E+04 nc	1.0E+05 max	2.6E+03 nc	2.6E+04 nc
Propylene glycol, monomethyl ether	1	7.0E-01	h	5.7E-01 i	0	5.5E+04 nc	1.0E+05 max	2.1E+03 nc	2.6E+04 nc
Propylene oxide	2.4E-01 i	8.6E-03	r 1.3E-02 i	8.6E-03 i	1			6.6E-01 ca	2.9E-01 ca
Pursuit	1	2.5E-01	i	2.5E-01 r	0	2.0E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc
Pydrin	1	2.5E-02	í	2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Pyridine	1	1.0E-03	i	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
Quinalphos	1	5.0E-04	i	5.0E-04 rJ	0	3.9E+01 nc	1.0E+03 nc	1.8E+00 nc	1.8E+01 nc
Quinoline	1.2E+01 h		1.2E+01 r	. 1	0	1.4E-01 ca	4.8E-01 ca	7.1E-04 ca	7.1E-03 ca
RDX (Cyclonite)	1.1E-01 i	3.0E-03	i 1.1E -C1 r	3.0E-03 r	0	1.5E+01 ca	5.2E+01 ca	7.7E-02 ca	7.7E-01 ca
Resmethrin	1	3.0E-02	i	3.0E-02 r	0	2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 nc
Ronnel	1	5.0E-02	h	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc
Rotenone	1	4.0E-03	i	4.0E-03 r	0	3.1E+02 nc	8.2E+03 nc	1.5E+01 nc	1.5E+02 nc
Savey	1	2.5E-02	i	2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Setenious Acid	İ	5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Selenium	İ	5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Selenourea	i	5.0E-03	h	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Sethoxydim	j	9.0E-02	i	9.0E-02 r	0	7.0E+03 nc	1.0E+05 max	3.3E+02 nc	3.3E+03 nc
Silver and compounds	i	5.0E-03	i	5.0E-03 r		3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Simazine	1.2E-01 h	2.0E-03	h 1.2E-01 r	•		1.6E+02 ca	4.1E+03 ca	7.1E-02 ca	7.3E+01 ca
Sodium ezide	i	4.0E-03	i	4.0E-03 r	0	3.1E+02 nc	8.2E+03 nc	1.5E+01 nc	1.5E+02 nc
Sodium diethyldithiocarbamate	2.7E-01 h	3.0E-02	i 2.7E-01 r	3.0E-02 r	0		2.1E+01 cm	3.2E-02 ca	3.2E-01 ca
Sodium fluoroacetate	j	2.0E-05	i	2.0E-05 r	0	1.6E+00 nc	4.1E+01 nc	7.3E-02 nc	7.3E-01 nc
Sodium metavanadate	i	1.0E-03	h	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
Strontium, stable	ĺ	6.0E-01		6.0E-01 r	0	4.7E+04 nc	1.0E+05 max	2.2E+03 nc	2.2E+04 nc

CONTAMINANT		TOXICITY V	ALUES			PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
an a ET	oSF	oRfD	iSF	iRfD	٧	Residential	Industrial	Ambient Air	Tap Water
DRAFT	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg) 	Soil (mg/kg)	(ug/m3)	(ug/l)
		3.0E-04		3.0E-04 r	_	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
Strychnine						:	1.3E+04 sat		
Styrene		2.0E-01		2.0E-01 r		•		7.3E+02 nc	1.5E+03 nc
Systh ane		2.5E-02		2.5E-02 r		1	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
2,3,7,8-TCDD (dioxin)	1.5E+05 h		1.5E+05 h	•		(2.00 1.1E-05 ca	3.8E-05 ca	5.7E-08 ca	5.7E-07 ca
Tebuthiuron		7.0E-02		7.0E-02 r			1.0E+05 max	2.6E+02 nc	2.6E+03 nc
Temephos .		2.0E-02		2.0E-02 r			4.1E+04 nc	7.3E+01 nc	7.3E+02 nc
Terbacil		1.3E-02		1.3E-02 r		•	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc
Terbufos		2.5E-05		2.5E-05 r		•	5.1E+01 nc	9.1E-02 nc	9.1E-01 nc
Terbutryn		1.0E-03		1.0E-03 r		•	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
1,2,4,5-Tetrachlorobenzene		3.0E-04		3.0E-04 r		:	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
1,1,1,2-Tetrachloroethane	2.6E-02 i	3.0E-02			_	•	1.6E+02 ca	3.3E-01 ca	6.9E-01 ca
1,1,2,2-Tetrachloroethane	2.0E-01 i		2.0E-01 i		1	•	2.7E+01 ca	4.2E-02 ca	8.8E-02 ca
Tetrachloroethylene (PCE)	5.5E-02 e			:		,	6.5E-01 sat	4.2E+00 ca	1.4E+00 ca
2,3,4,6-Tetrachlorophenol		3.0E-02		3.0E-02 r		<u>!</u>	6.1E+04 nc	1.1E+02 nc	1.1E+03 nc
p,a,a,a-Tetrachlorotoluene	2.0E+01 h		2.0E+01 r	•	0	8.5E-02 ca	2.9E-01 ca	4.3E-04 cm	4.3E-03 ca
Tetrachlorovinphos	2.4E-02 h	3.0E-02	i 2.4E-02 r	•		7.1E+01 ca	2.4E+02 ca	3.5E-01 ca	3.5E+00 ca
Tetraethyldithiopyrophosphate		5.0E-04	Î	5.0E-04 r	0	3.9E+01 nc	1.0E+03 nc	1.8E+00 nc	1.8E+01 nc
Tetrahydrofuran				I	1				
Thallic oxide		7.0€-05	h	7.0E-05 r	0	5.5E+00 nc	1.4E+02 nc	2.6E-01 nc	2.6E+00 nc
Thallium acetate		9.0E-05	i	9.0E-05 r	0	7.0E+00 nc	1.8E+02 nc	3.3E-01 nc	3.3E+00 nc
Thallium carbonate		8.0E-05	i	8.0E-05 r	0	6.3E+00 nc	1.6E+02 nc	2.9E-01 nc	2.9E+00 nc
Thallium chloride		8.0E-05	i	8.0E-05 r	0	6.3E+00 nc	1.6E+02 nc	2.9E-01 nc	2.9E+00 nc
Thallium nitrate		9.0E-05	i	9.0E-05 r	0	7.0E+00 nc	1.8E+02 nc	3.3E-01 nc	3.3E+00 nc
Thellium selenite		9.0E-05	i	9.0E-05 r	0	7.0E+00 nc	1.8E+02 nc	3.3E-01 nc	3.3E+00 nc
Thallium sulfate		8.0E-05	i	8.0E-05 r	0	6.3E+00 nc	1.6E+02 nc	2.9E-01 nc	2.9E+00 nc
Thiobencarb		1.0E-02	i	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
2-(Thiocyanomethylthio)- benzothiazole (3.0E-02	,	3.0E-02 r	0	2.3E+03 nc	6.1E+04 nc	1.1E+02 nc	1.1E+03 nc
Thiofanox		3.0E-04	ħ	3.0E-04 r	0	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
Thiophanate-methyl		8.0E-02		8.0E-02 r	•	6.3E+03 nc	1.0E+05 max	2.9E+02 nc	2.9E+03 nc
Thiram		5.0E-03	i	5.0E-03 r	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Tin and compounds		6.0E-01	ŀ	6.0E-01 r	0	4.7E+04 nc	1.0E+05 max	2.2E+03 nc	2.2E+04 nc
Toluene		2.0E-01	i	1.1E-01 h		2.8E+02 sat	2.8E+02 sat	4.0E+02 nc	9.3E+02 nc

CONTAMINANT]	TOXICITY V	ALUES			PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
	oSF	oR fD	iSF	iRfD	V	Residential	Industrial	Ambient Air	Tap Water
DRAFT	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m3)	(ug/l)
	1			i	С				!
Toluene-2,4-diamine	3.2E+00 h		3.2E+00 r	· · · · · · · · · · · · · · · · · · ·	0	5.3E-01 ca	1.8E+00 ca	2.7E-03 ca	2.7E-02 ca
Toluene-2,5-diamine	1	6.0E-01	1	6.0E-01 r	0	4.7E+04 nc	1.0E+05 mex	2.2E+03 nc	2.2E+04 nc
Toluene-2,6-diamine	1	2.0E-01 I	1	2.0E-01 r	0	1.6E+04 nc	1.0E+05 mex	7.3E+02 nc	7.3E+03 nc
Toxaphene	1.1E+00 i		1.1E+0□ i	ı	0	1.5E+00 ca	5.2E+00 ca	7.6E-03 ca	7.7E-02 ca
Tralomethrin	1	7.5E-03	i	7.5E-03 r	0	5.9E+02 nc	1.5E+04 nc	2.7E+01 nc	2.7E+02 nc
Triallate		1.3E-02	i	1.3E-02 r	0	1.0E+03 nc	2.7E+04 nc	4.7E+01 nc	4.7E+02 nc
Triasulfuron	İ	1.0E-02	i	1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
1,2,4-Tribromobenzene		5.0E-03	i	5.0E-03 r/	0	3.9E+02 nc	1.0E+04 nc	1.8E+01 nc	1.8E+02 nc
Tributyltin oxide (TBTO)		3.0E-05	i	3.0E-05 r	0	2.3E+00 nc	6.1E+01 nc	1.1E-01 nc	1.1E+00 nc
2,4,6-Trichloroaniline	3.4E-02 h		3.4E-02 r	1	0	1.0E+09 ca	1.7E+02 ca	2.5E-01 ca	2.5E+00 ca
2,4,6-Trichloroaniline hydrochloride	2.9E-02 h		2.9E-0 2 r	ĺ	0	5.9E+01 ca	2.0E+02 ca	2.9E-01 ca	2.9E+00 ca
1,2,4-Trichlorobenzene		1.0E-02 i		2.6E-03 h	1	5.5E+02 sat	5.5E+02 sat	9.4E+00 nc	2.3E+01 nc
1,1,1-Trichloroethane		9.0E-02 h	1	2.9E-01 h	1	4.9E+01 sat	4.9E+01 sat	1.0E+03 nc	1.5E+03 nc
1,1,2-Trichloroethane	5.7E-02 i	4.0E-03 i	5.6E-02 i	4.0E-03 r	1	6.9E+00 sat	6.9E+00 sat	1.5E-01 ca	3.2E-01 ca
Trichloroethylene (TCE)	1.1E-02 e	6.0E-03 e	6.0E-03 e	6.0E-03 r	1	3.4E+01 sat	3.4E+01 sat	1.4E+00 ca	2.5E+00 ca
Trichlorofluoromethane		3.0E-01 i		2.0E-01 h	1	4.1E+02 sat	4.1E+02 sat	7.3E+02 nc	1.7E+03 nc
2,4,5-Trichlorophenol		1.0E-01 i		1.0E-01 r	0	9.3E-01 sat	9.3E-01 sat	3.7E+02 nc	3.7E+03 nc
2,4,6-Trichlorophenol	1.1E-02 i		1.1E-02 i	i	0	1.5E+02 ca	5.2E+02 ca	7.8E-01 ca	7.7E+00 ca
2,4,5-Trichlorophenoxyacetic Acid		1.0E-02 i		1.0E-02 r	0	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc]
2-(2,4,5-Trichlorophenoxy) propionic aci		8.0E-03 i		8.0E-03 r	0	6.3E+02 nc	1.6E+04 nc	2.9E+01 nc	2.9E+02 nc
1,1,2-Trichloropropane		5.0E-03 i		5.0E-03 r	1	3.1E+02 sat	3.1E+02 sat	1.8E+01 nc	3.8E+01 nc
1,2,3-Trichloropropane	2.7E+00 e	6.0E-03 i	2.7E+00 r	5.0E-03 r	1	3.1E+02 sat	3.1E+02 sat	3.2E-03 ca	4.0E+01 ca
Ethyl acetate				j	0				1
1,2,3-Trichloropropene		5.0E-03 h	1	5.0E-03 r	1 j	3.0E+02 set	3.0E+02 sat	1.8E+01 nc	3.8E+01 nc
1,1,2-Trichloro-1,2,2-trifluoroethane		3.0E+01 i		8.6E+00 h	- 1 İ	4.1E+02 sat	4.1E+02 sat	3.1E+04 nc	7.8E+04 nc
Tridiphane		3.0 E-03 i		3.0E-03 r	•	2.3E+02 nc	6.1E+03 nc	1.1E+01 nc	1.1E+02 nc
Triethylamine		2.0E-03 r		2.0E-03 i	•	2.2E+02 nc	3.0E+02 nc	7.3E+00 nc	1.5E+01 nc
Trifluratin	7.7E-03 i	7.5E-03 i	7.7E-03 r	7.5E-03 r		2.2E+02 ca	7.4E+02 ca	1.1E+00 ca	1.1E+01 ca
Trimethyl phosphate	3.7E-02 h		3.7E-02 r	i	οj	4.6E+01 ca	1.5E+02 ca	2.3E-01 ca	2.3E+00 ca
1,3,5-Trinitrobenzene		5.0E-05 i		5.0E-05 r	0	3.9E+00 nc	1.0E+02 nc	1.8E-01 nc	1.8E+00 nc
Trinitrophenylmethylnitramine		1.0E-02 h		1.0E-02 r	•	7.8E+02 nc	2.0E+04 nc	3.7E+01 nc	3.7E+02 nc
2,4,6-Trinitrotoluene	5.0E-04 i		3.0E-(2 i	i	0 1	3.4E+03 ca	1.1E+04 ca	2.8E-01 ca	1.7E+02 ca

Region IX Preliminary Remediation Goals (04/02/93)



CONTAMINANT		TOXICITY V	ALUES	ſ		PRELIMI	NARY REMEDIATION G	OALS (PRGS)	
	oSF	oRfD	iSF	iRfD	, v	Residential	Industrial	Ambient Air	Tap Water
	1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	0	Soil (mg/kg)	Soil (mg/kg)	(ug/m³)	(ug/l)
					С				
Uranium (soluble salts)		3.0E-03	i		0	2.3E+02 nc	6.1E+03 nc		1.1E+02 nc
Vanadium	ĺ	7.0E-03	h	į	0	5.5E+02 nc	1.4E+04 nc		2.6E+02 nc
Vanadium pentoxide	j	9.0E-03	i	1	0	7.0E+02 nc	1.8E+04 nc		3.3E+02 nc
Vanadyl sulfate	İ	2.0E-02	h	ĺ	0	1.6E+03 nc	4.1E+04 nc		7.3E+02 nc
Vanadium sulfate	İ	2.0E-02	h	1	0	1.6E+03 nc	4.1E+04 nc		7.3E+02 nc
Vernam	İ	1.0E-03	i	1.0E-03 r	0	7.8E+01 nc	2.0E+03 nc	3.6E+00 nc	3.7E+01 nc
Vinclozolin		2.5E-02	i	2.5E-02 r	0	2.0E+03 nc	5.1E+04 nc	9.1E+01 nc	9.1E+02 nc
Vinyl acetate		1.0E+00	h	5.7E-02 i	0	7.8E+04 nc	1.0E+05 max	2.1E+02 nc	3.7E+04 nc
Vinyl chloride	1.9E+00 h	1	3.0E-01 H	۱ ا	1	1.1E-01 ca	2.0E-01 ca	2.8E-02 ca	2.8E-02 ca
Warfarin	j	3.0E-04	i	3.0E-04 r	0	2.3E+01 nc	6.1E+02 nc	1.1E+00 nc	1.1E+01 nc
m-Xylene	į	2.0E+00	i	2.0E-01 x	1	9.9E+01 sat	9.9E+01 sat	7.3E+02 nc	1.9E+03 nc
o-Xylene	1	2.0E+00	i	2.0E-01 x	1	9.9E+01 sat	9.9E+01 sat	7.3E+02 nc	1.9E+03 nc
p-Xylene	j	8.6E-02	г	8.6E-02 x	1	9.9E+01 sat	9.9E+01 sat	3.1E+02 nc	6.6E+02 nc
Xylene (mixed)	i	2.0E+00	i	2.0E-01 r	1	9.9E+01 sat	9.9E+01 sat	7.3E+02 nc	1.9E+03 nc
Zinc	į	3.0E-01	î	Ì	0	2.3E+04 nc	1.0E+05 max		1.1E+04 nc
Zinc phosphide	į	3.9E-04	i	į	0	2.3E+01 nc	6.1E+02 nc		1.1E+01 nc
Zineb	i	5.0E-02	i	5.0E-02 r	0	3.9E+03 nc	1.0E+05 max	1.8E+02 nc	1.8E+03 nc

Federal Maximum Contaminant Levels 40 CFR §141.11 and §141.12 (1 July 1992)

Contaminant	Lavel. malagrams per inter
Anare:	
Banum	
Cadmum	0.01
Chromum	
Lead	0.0
Mercury	0.00
Nitrate (as N)	10
Selenium	

	Level, miliigrams per liter
(a) Chlonnated hydrocarbons:	
Endon (1,2,3,4,10, 10-hexachloro-6, 7-1	
epoxy=1.4, 4a.5.6.7.8.81-octahydro-1.4-	
endo, endo-5,8-dimethano naphthalene)	0.0002
Lindane (1,2,3,4,5,6-hexachlorocyclo- (
hexane, gamme reomer)	0.004
Methoxychior (1,1,1-Trichloro-2, 2-bis (p-	
methoxyphenyi] ethane)	0.1
Toxaphene (C ₁₀ H ₁₀ Cl ₀ -Technical chlorinated)	
camphene, 67-69 percent chlonne)	0.005
(b) Chlorophenoxys:	
2,4-D, (2,4-Dichlorophenoxyscetic scid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxypro-	
pronec acad)	0.01
(c) Total trinsiomethenes (the sum of the con-	
centrations of bromodichloromethans, dibro-	
mochioromethane, tribromomethane (bromo-	
form) and trichloromethene (chloroform))	0.10

	Level, miligrams per inter
(a) Chlonnated hydrocarbons: Endras (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4, 4e,5,6,7,8,81-octahydro-1,4-endo, endo-5,8- dimethano naprifisiene)	0.000
(b) [Reserved]	
form))	0.10

State of California Maximum Contaminant Levels California Code of Regulation Title 22 §64435 and §64444.5 (10 July 1992)

Maximum Contaminant Levels Organic Chemicals

Maximum Contaminant Constituent Level, mg/l (a) Chlorinated Hydrocarbons Endra 0.0002 Lindane 0.004 Methoxychior 0.1 Toxaphene 0.005 (b) Chlorophenoxys 2.4-D ... 2.4.5-TP Silvex 0.01 (c) Synthetics Atrazine Bentazon 0.018 Benzene 0.001 Carbofuran 0.018 Chlordane 0.0001 1,2-Dibromo-5-chloropropane 0.0002 | 1,4=Dichloroenzene | 0.005 | | 1,1=Dichloroenzene | 0.005 | | 1,2=Dichloroethane | 0.005 | | 1,2=Dichloroethylene | 0.006 | | 1,2=Dichloroethylene | 0.006 | | 1,2=Dichloroethylene | 0.006 | | 1,2=Dichloroethylene | 0.006 | | 1,3=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.005 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4=Dichloroethylene | 0.006 | | 1,4= 1.1-Dichloroethylene 0.006 1.2-Dichloropropane 0.005 1.3-Dichloropropene 0.0005 Di(2-ethylhexy)) phthalate 0.004 Ethylbenzene 0.680 Ethylene Dibromude 0.00002 Maximum

Maximum Contaminant Levels Inorganic Chemicals

Constituent .	<u>Maximum Coniaminani</u> Level, mg/l
Aluminum Arsenic Barium Cadmium Cluenium Mercury	1. 0.05 1. 0.010 0.05 0.03 0.002
Nitrate (as NO ₂) Selenium Silver	45 . 0.01 0.05

Enclosure (2)

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RFAR'CT0193 CLE-C01-01F193-\$2-0001

Appendix G

EVALUATION OF TICs

TO:

Tim Smith

FROM:

Artemis Antipas

DATE:

July 14, 1993

SUBJECT:

Tentatively Identified Compounds List for El Toro RFA

PROJECT: SCO70022.DV

The tentatively identified compounds (TICs) were analyzed by EPA Contract Laboratory Program protocols; the reporting format also follows the protocols. A list of the TICS reported for volatile and semivolatile analyses are available in the RFA project file. The reported compounds are identified by retention time as well as a chemical name. Retention time is the time it takes the compound of concern to elute from the chromatographic column used for the analytical run. Tracking by retention time is particularly useful for compounds labeled as "unknown." TICs are identified by comparison of the individual compound spectrum to a library of about 50,000 spectra as opposed to comparison to standard compounds analyzed during the same analytical sequence as is the case for the target compound list. Thus, the identification and quantification of the compounds are qualified with N and J, respectively. 'J' qualifier indicates an estimated amount while 'N' indicates tentative identification.

The tentatively identified compound list has been reviewed and corrected for laboratory and field blanks per EPA functional guidelines. The tentatively identified compounds for volatiles and semivolatiles detected for El Toro, though labeled "unknown" at large, are expected to be fuel, oil, and grease components. This is indicated by the continuous retention time distribution of the peaks and the lack of specificity with regard to chemical functionality. Fuel, oil, and grease components at large are hydrocarbon chains of a wide range of molecular-size distribution; thus, the observed TIC peaks show a continuous range of retention times as the range of hydrocarbon molecules is expected to elute in a continuous

File name: RFATICS.FIN

manner based on the increasing size of the chains. Also, these molecules lack specificity in that they do not have a functional group (e.g., alcohol, ester, amine) that is distinct from a generic hydrocarbon structure. Thus, this lack of specificity in the structure leads to the widespread "unknown" label. This observation is further supported by total petroleum hydrocarbon, diesel, and gasoline analyses, which show detects in the areas where the TICs are reported. Further analyses of the TIC spectra preserved in the laboratory files is possible; more information can be obtained without reanalysis of the samples. However, this further search is not expected to affect site decisions in view of the existing hydrocarbon data, so no further evaluations are recommended.

File name: RFATICS.FIN